



## Turkey only

### • RoHS

EEE Yönetmeliğine Uygundur.  
This EEE is compliant with RoHS.

- Bu ürünün ortalama yaşam süresi 7 yıl, garanti süresi 2 yıldır.



## Replacing the fitted plug (for UK only)

### Important

The mains lead for this machine is fitted with a standard (BS 1363) 13 amp plug and has a 13 amp fuse. When you change or examine the fuse, you must re-fit the correct 13 amp fuse. You then need to replace the fuse cover. If you have lost the fuse cover, do not use the plug until you have another fuse cover.

Contact the people from you purchased the machine.

The 13 amp plug is the most widely used type in the UK and should be suitable. However, some buildings (mainly old ones) do not have normal 13 amp plug sockets. You need to buy a suitable plug adaptor. Do not remove the moulded plug.



If you cut off the moulded plug, get rid of it straight away.  
You cannot rewire the plug and you may receive an electric shock if you plug it into a socket.

### Important warning:



You must earth this machine.

The wires in the mains lead have the following color code:

- **Green and Yellow:** Earth
- **Blue:** Neutral
- **Brown:** Live

If the wires in the mains lead do not match the colors marked in your plug, do the following:

You must connect the green and yellow wire to the pin marked by the letter "E" or by the safety 'Earth symbol' or colored green and yellow or green.

You must connect the blue wire to the pin which is marked with the letter "N" or colored black.

You must connect the brown wire to the pin which is marked with the letter "L" or colored red.

You must have a 13 amp fuse in the plug, adaptor, or at the distribution board.



## Declaration of conformity (European)

### Approvals and Certifications



The CE marking applied to this product symbolizes Samsung Electronics Co., Ltd. Declaration of Conformity with the following applicable 93/68/EEC Directives of the European Union as of the dates indicated:

Hereby, Samsung Electronics declare that this product is in compliance with the essential requirements and other relevant provisions of:

- **ML-331x Series, ML-371x Series:** Low Voltage Directive (2006/95/EC), EMC Directive (2004/108/EC)
- **ML-371xDW:** R&TTE Directive (1999/5/EC)

The declaration of conformity may be consulted at [www.samsung.com/printer](http://www.samsung.com/printer), go to Support > Download center and enter your printer (MFP) name to browse the EuDoC.


**January 1, 1995:** Council Directive 2006/95/EC Approximation of the laws of the member states related to low voltage equipment.

**January 1, 1996:** Council Directive 2004/108/EC (92/31/EEC), approximation of the laws of the Member States related to electromagnetic compatibility.

**March 9, 1999:** Council Directive 1999/5/EC on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity. A full declaration, defining the relevant Directives and referenced standards can be obtained from your Samsung Electronics Co., Ltd. representative.

### European radio approval information (for products fitted with EU-approved radio devices)

Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4 GHz/5 GHz band, may be present (embedded) in your printer system which is intended for home or office use. This section is only applicable if these devices are present. Refer to the system label to verify the presence of wireless devices.

Wireless devices that may be in your system are only qualified for use in the European Union or associated areas if a CE mark with  a Notified Body Registration Number and the Alert Symbol is on the system label.

The power output of the wireless device or devices that may be embedded in you printer is well below the RF exposure limits as set by the European Commission through the R&TTE directive.

## ► European states qualified under wireless approvals:

EU

Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France (with frequency restrictions), Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and the U.K.

EEA/EFTA countries

Iceland, Liechtenstein, Norway and Switzerland

## ► European states with restrictions on use:

EU

In France, the frequency range is restricted to 2446.5-2483.5 MHz for devices above 10 mW transmitting power such as wireless

EEA/EFTA countries

No limitations at this time



## Regulatory compliance statements

### Wireless guidance

Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4 GHz/5 GHz Band, may be present (embedded) in your printer system. The following section is a general overview of considerations while operating a wireless device.

Additional limitations, cautions, and concerns for specific countries are listed in the specific country sections (or country group sections). The wireless devices in your system are only qualified for use in the countries identified by the Radio Approval Marks on the system rating label. If the country you will be using the wireless device in, is not listed, contact your local Radio Approval agency for requirements. Wireless devices are closely regulated and use may not be allowed.

The power output of the wireless device or devices that may be embedded in your printer is well below the RF exposure limits as known at this time. Because the wireless devices (which may be embedded into your printer) emit less energy than is allowed in radio frequency safety standards and recommendations, manufacturer believes these devices are safe for use. Regardless of the power levels, care should be taken to minimize human contact during normal operation.

As a general guideline, a separation of 20 cm (8 inches) between the wireless device and the body, for use of a wireless device near the body (this does not include extremities) is typical. This device should be used more than 20 cm (8 inches) from the body when wireless devices are on and transmitting.

This transmitter must not be collocated or operation in conjunction with any other antenna or transmitter.

Some circumstances require restrictions on wireless devices. Examples of common restrictions are listed below:



Radio frequency wireless communication can interfere with equipment on commercial aircraft. Current aviation regulations require wireless devices to be turned off while traveling in an airplane. IEEE 802.11 (also known as wireless Ethernet) and Bluetooth communication devices are examples of devices that provide wireless communication.



In environments where the risk of interference to other devices or services is harmful or perceived as harmful, the option to use a wireless device may be restricted or eliminated. Airports, Hospitals, and Oxygen or flammable gas laden atmospheres are limited examples where use of wireless devices may be restricted or eliminated. When in environments where you are uncertain of the sanction to use wireless devices, ask the applicable authority for authorization prior to use or turning on the wireless device.



Every country has different restrictions on the use of wireless devices. Since your system is equipped with a wireless device, when traveling between countries with your system, check with the local Radio Approval authorities prior to any move or trip for any restrictions on the use of a wireless device in the destination country.



If your system came equipped with an internal embedded wireless device, do not operate the wireless device unless all covers and shields are in place and the system is fully assembled.



Wireless devices are not user serviceable. Do not modify them in any way. Modification to a wireless device will void the authorization to use it. Contact manufacturer for service.



Only use drivers approved for the country in which the device will be used. See the manufacturer System Restoration Kit, or contact manufacturer Technical Support for additional information.



## 产品中有毒有害物质或元素的名称及含量

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr <sup>6+</sup> )	多溴联苯 (PBB)	多溴联苯醚 (PBDE)
塑料	○	○	○	○	○	○
金属 ( 机箱 )	X	○	○	○	○	○
印刷电路部件 (PCA)	X	○	○	○	○	○
电缆 / 连接器	X	○	○	○	○	○
电源设备	X	○	○	○	○	○
电源线	X	○	○	○	○	○
机械部件	X	○	○	○	○	○
卡盒部件	X	○	○	○	○	○
定影部件	X	○	○	○	○	○
扫描仪部件 - CCD ( 如果有 )	X	X	○	○	○	○
扫描仪部件 - 其它 ( 如果有 )	X	○	○	○	○	○
印刷电路板部件 (PBA)	X	○	○	○	○	○
墨粉	○	○	○	○	○	○
滚筒	○	○	○	○	○	○

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**REV. 1.00**



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**ML-331x Series**

**ML-371x Series**

# **User's Guide**

## **Advanced**

### **imagine the possibilities**

This guide provides information about installation, advanced configuration, operation and troubleshooting on various OS environments.

Some features may not be available depending on model or country.



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- 7 Reinstallation for Macintosh
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Contact SAMSUNG worldwide

Glossary

# 1. Software installation



This chapter provides instructions for installing essential and helpful software for use in an environment where the machine is connected via a cable. A locally connected machine is a machine directly attached to your computer using the cable. If your machine is attached to a network, skip the following steps below and go on to installing a network connected machine's driver (see [Installing driver over the network](#)<sup>17</sup>).

- **Installation for Macintosh** **5**
- **Reinstallation for Macintosh** **7**
- **Installation for Linux** **8**
- **Reinstallation for Linux** **10**



- If you are a Windows OS user, refer to the Basic Guide for installing the machine's driver.
- Only use a USB cable no longer than 3 meter (118 inches).

- 1 Make sure that the machine is connected to your computer and powered on.
- 2 Insert the supplied software CD into your CD-ROM drive.
- 3 Double-click the CD-ROM icon that appears on your Macintosh desktop.
- 4 Double-click the **MAC\_Installer** folder > **Installer OS X** icon.
- 5 Enter the password and click **OK**.
- 6 Click **Continue**.
- 7 Read the license agreement and click **Continue**.
- 8 Click **Agree** to agree to the license agreement.
- 9 Select **Easy Install** and click **Install**. **Easy Install** is recommended for most users. All components necessary for machine operations will be installed.  
If you select **Custom Install**, you can choose individual components to install.
- 10 When the message that warns that all applications will close on your computer appears, click **Continue**.
- 11 Select **Typical installation for a local printer** and then click **OK**.
- 12 Click **Continue** on the **Read Me** window.
- 13 After the installation is finished, click **Quit**.
- 14 Open the **Applications** folder > **Utilities** > **Print Setup Utility**.
  - For Mac OS X 10.5-10.6, open the **Applications** folder > **System Preferences** and click **Print & Fax**.
- 15 Click **Add** on the **Printer List**.
  - For Mac OS X 10.5-10.6, click the “+” icon; a display window will pop up.
- 16 For Mac OS X 10.3, select the **USB** tab.
  - For Mac OS X 10.4, click **Default Browser** and find the USB connection.
  - For Mac OS X 10.5-10.6, click **Default** and find the USB connection.

**17** For Mac OS X 10.3, if Auto Select does not work properly, select **Samsung** in **Printer Model** and your machine name in **Model Name**.

- For Mac OS X 10.4, if Auto Select does not work properly, select **Samsung** in **Print Using** and your machine name in **Model**.
- For Mac OS X 10.5-10.6, if Auto Select does not work properly, select **Select a driver to use...** and your machine name in **Print Using**.

Your machine appears on the **Printer List**, and is set as the default machine.

**18** Click **Add**.

If the printer driver does not work properly, uninstall the driver and reinstall it.

- 1 Make sure that the machine is connected to your computer and powered on.
- 2 Insert the supplied software CD into your CD-ROM drive.
- 3 Double-click the CD-ROM icon that appears on your Macintosh desktop.
- 4 Double-click the **MAC\_Installer** folder > **Installer OS X** icon.
- 5 Enter the password and click **OK**.
- 6 Click **Continue**.
- 7 Read the license agreement and click **Continue**.
- 8 Click **Agree** to agree to the license agreement.
- 9 Select **Uninstall** and click **Uninstall**.
- 10 When the message which warns that all applications will close on your computer appears, click **Continue**.
- 11 When the uninstall is done, click **Quit**.



If a machine has already been added, delete it from the **Print Setup Utility** or **Print & Fax**.



You need to download Linux software packages from the Samsung website to install the printer software (<http://www.samsung.com/printer>).



## Installing the Unified Linux Driver

- 1 Make sure that the machine is connected to your computer and powered on.
  - 2 When the **Administrator Login** window appears, type "root" in the **Login** field and enter the system password.
- 
- You must log in as a super user (root) to install the machine software. If you are not a super user, ask your system administrator.
- 3 From the Samsung website, download the Unified Linux Driver package to your computer.
  - 4 Right-click the **Unified Linux Driver** package and extract the package.
  - 5 Double click **cdroot** > **autorun**.

- 6 When the welcome screen appears, click **Next**.
- 7 When the installation is complete, click **Finish**.

The installation program added the Unified Driver Configurator desktop icon and the Unified Driver group to the system menu for your convenience. If you have any difficulties, consult the on-screen help that is available through your system menu or from the driver package Windows applications, such as **Unified Driver Configurator** or **Image Manager**.



## Installing the Smart Panel

- 1 Make sure that the machine is connected to your computer and powered on.
  - 2 When the **Administrator Login** window appears, type in root in the **Login** field and enter the system password.
- 
- You must log in as a super user (root) to install the machine software. If you are not a super user, ask your system administrator.
- 3 From the Samsung website, download the **Smart Panel** package to your computer.

- 4 Right-click the Smart Panel package and extract the package.
- 5 Double click **cdroot** > **Linux** > **smartpanel** > **install.sh**.



## Installing the Printer Settings Utility

- 1 Make sure that the machine is connected to your computer and powered on.
- 2 When the **Administrator Login** window appears, type “root” in the **Login** field and enter the system password.



You must log in as a super user (root) to install the machine software. If you are not a super user, ask your system administrator.

- 3 From the Samsung website, download the Printer Settings Utility package to your computer.
- 4 Right-click the **Printer Settings Utility** package and extract the package.
- 5 Double click **cdroot** > **Linux** > **psu** > **install.sh**.

If the printer driver does not work properly, uninstall the driver and reinstall it.

- 1 Make sure that the machine is connected to your computer and powered on.
- 2 When the **Administrator Login** window appears, type “root” in the **Login** field and enter the system password.  
  
You must log in as a super user (root) to uninstall the printer driver. If you are not a super user, ask your system administrator.
- 3 Click the icon at the bottom of the desktop. When the Terminal screen appears, type in the following.  

```
[root@localhost root]#cd /opt/Samsung/mfp/uninstall/  
[root@localhost uninstall]#./uninstall.sh
```
- 4 Click **Uninstall**.
- 5 Click **Next**.
- 6 Click **Finish**.

## 2. Using a network-connected machine



This chapter gives you step-by-step instructions for setting up a network connected machine and software.

- **Useful network programs** 12
- **Wired network setup** 13
- **Installing driver over the network** 17
- **IPv6 configuration** 24
- **Wireless network setup** 27

There are several programs available to setup the network settings easily in a network environment. For the network administrator especially, managing several machines on the network is possible.



Before using the programs below, set the IP address first.



## SyncThru™ Web Service

The web server embedded on your network machine allows you to do the following tasks (see "Using SyncThru™ Web Service" on page 26):

- Check the supplies information and status.
- Customize machine settings.
- Set the email notification option. When you set this option, the machine status (toner cartridge shortage or machine error) will be sent to a certain person's email automatically.
- Configure the network parameters necessary for the machine to connect to various network environments.



## SyncThru™ Web Admin Service

Web-based machine management solution for network administrators. SyncThru™ Web Admin Service provides you with an efficient way of managing network devices and lets you remotely monitor and troubleshoot network machines from any site with corporate internet access. Download this program from <http://solution.samsungprinter.com>.



## SetIP

This utility program allows you to select a network interface and manually configure the IP addresses for use with the TCP/IP protocol.


- See "IPv4 configuration using SetIP (Windows)" on page 13.
- See "IPv4 configuration using SetIP (Macintosh)" on page 14.
- See "IPv4 configuration using SetIP (Linux)" on page 15.



TCP/IPv6 is not supported by this program.

You must set up the network protocols on your machine to use it on your network.



You can use network after connecting network cable to a corresponding port on your machine.

- For models that do not have the display screen on the control panel, use the SyncThru™ Web Service or SetIP program.
  - See "Using SyncThru™ Web Service" on page 91.
  - See "Setting IP address" on page 13.
- For models that have the display screen on the control panel, configure the network setting by pressing  (**Menu**) button > **Network** on the control panel (see "Network" on page 64).



### Printing a network configuration report

You can print **Network Configuration Report** from the machine's control panel that will show the current machine's network settings. This will help you to set up a network.

- **The machine has the display screen:** Press the  (**Menu**) button on the control panel and select **Network > Network Config. (Network Configuration) > Yes**.
- **The machine does not have the display screen:** Press the  (**Cancel** or **Stop/Clear**) button for more than five seconds on the control panel.

Using this **Network Configuration Report**, you can find your machine's MAC address and IP address.

For example:

- MAC Address: 00:15:99:41:A2:78
- IP Address: 192.0.0.192




### Setting IP address

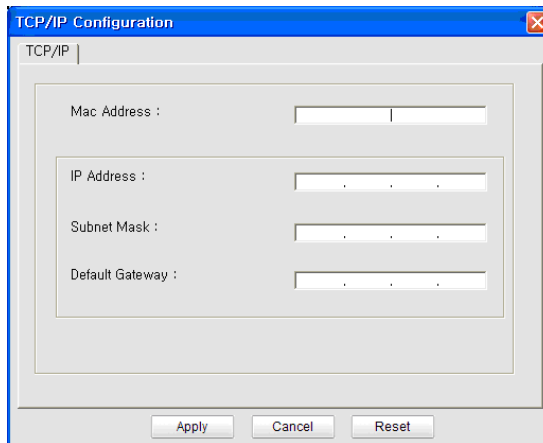
First, you have to set up an IP address for network printing and managements. In most cases a new IP address will be automatically assigned by a DHCP (Dynamic Host Configuration Protocol) server located on the network.

### IPv4 configuration using SetIP (Windows)

Before using the SetIP program, disable the computer firewall from **Control Panel > Security Center > Windows Firewall**.

- 1 Install this program from the supplied CD-ROM by double-click **Application > SetIP > Setup.exe**.
- 2 Follow the instructions in the installation window.
- 3 Connect your machine to the network with a network cable.

- 4 Turn on the machine.
- 5 From the Windows **Start** menu, select **All Programs > Samsung Printers > SetIP > SetIP**.
- 6 Click the  icon (third from left) in the SetIP window to open the TCP/IP configuration window.
- 7 Enter the machine's new information into the configuration window as follows. In a corporate intranet, you may need to have this information assigned by a network manager before proceeding.



Find the machine's MAC address from the **Network Configuration Report** (see "Printing a network configuration report" on page 13) and enter it without the colons. For example, 00:15:99:29:51:A8 becomes 0015992951A8.

- 8 Click **Apply**, and then click **OK**. The machine will automatically print the **Network Configuration Report**. Confirm that all the settings are correct.


## IPv4 configuration using SetIP (Macintosh)

Before using the SetIP program, disable the computer firewall from **System Preferences > Security > Firewall**.



The following instructions may vary from your model.

- 1 Connect your machine to the network with a network cable.
- 2 Insert the Installation CD-ROM, and open the disk window, select **MAC\_Installer > MAC\_Printer > SetIP > SetIPApplet.html**.

- 3 Double-click the file and **Safari** will automatically open, then select **Trust**. The browser will open the **SetIPApplet.html** page that shows the printer's name and IP address information.
- 4 Click the  icon (third from left) in the SetIP window to open the TCP/IP configuration window.
- 5 Enter the machine's new information into the configuration window. In a corporate intranet, you may need to have this information assigned by a network manager before proceeding.



Find the machine's MAC address from the **Network Configuration Report** (see "Printing a network configuration report" on page 13) and enter it without the colons. For example, 00:15:99:29:51:A8 becomes 0015992951A8.

- 6 Select **Apply**, then **OK**, and **OK** again.
- 7 Quit **Safari**.

## IPv4 configuration using SetIP (Linux)

Before using the SetIP program, disable the computer firewall from **System Preferences** or **Administrator**.



The following instructions may vary from your model or operating systems.

- 1 Open `/opt/Samsung/mfp/share/utils/`.
- 2 Double-click the **SetIPApplet.html** file.
- 3 Click to open the TCP/IP configuration window.
- 4 Enter the machine's new information into the configuration window. In a corporate intranet, you may need to have this information assigned by a network manager before proceeding.



Find the machine's MAC address from the **Network Configuration Report** (see "Printing a network configuration report" on page 13) and enter it without the colons. For example, 00:15:99:29:51:A8 becomes 0015992951A8.



- 5 The machine will automatically print the **Network Configuration Report**.



## Windows

- 1 Make sure that the machine is connected to the network and powered on. Also, your machine's IP address should have been set (see "Setting IP address" on page 13).



If the "**Found New Hardware Wizard**" appears during the installation procedure, click **Cancel** to close the window.

- 2 Insert the supplied software CD into your CD-ROM drive. The software CD should automatically run and an installation window will appear.

- 3 Select **Install Now**.



When you click the **Advanced Installation**, you can use the **Custom Installation** option. The **Custom Installation** allows you to select the machine's connection and choose individual components to install. Follow the instructions on the window.

- 4 Read **License Agreement**, and select **I accept the terms of the License Agreement**. Then, click **Next**.

The program searches for the machine.



If your machine is not found on the network or locally, an error message appears.

- **Check if you want to install the software without connection of the printer.**
  - Check this option to install this program without a machine connected. In this case, the print a test page window will be skipped, and completes the installation.
- **Search again**

When you press this button, the firewall notice window appears.

  - Turn off the firewall and **Search again**. For Windows operating system, click **Start > Control Panel > Windows Firewall**, and inactivate this option.
  - Turn off the firewall from the third party's program beside the operating system. Refer to the manual provided by individual programs.

- **Direct Input**

The **Direct Input** allows you to search for a specific machine on the network.

- **Search by IP address:** Enter the IP address or the host name. Then click **Next**.

To verify your machine's IP address, print a network configuration report (see "Printing a network configuration report" on page 13).

- **Search by network path:** To find a shared machine (UNC Path), enter the shared name manually or find a shared printer by clicking the **Browse** button. Then click **Next**.

- **Help**

If your machine is not connected to the computer or network, this help button gives detailed information about how to connect the machine.

- **SNMP Community Name**

If your system administrator set the new **SNMP Community Name** on the machine, you can find the machine in the network. Contact your system administrator for new **SNMP Community Name**.

- 5 The searched machines will be shown on the screen. Select the one you wish to use and click **OK**.



If the driver searched only one machine, the confirmation window appears.

- 6 Follow the instructions in the installation window.



### Macintosh

- 1 Make sure that the machine is connected to your network and powered on. Also, your machine's IP address should have been set (see "Setting IP address" on page 13).
- 2 Insert the supplied software CD into your CD-ROM drive.
- 3 Double-click the CD-ROM icon that appears on your Macintosh desktop.
- 4 Double-click the **MAC\_Installer** folder > **Installer OS X** icon.
- 5 Enter the password and click **OK**.
- 6 Click **Continue**.
- 7 Read the license agreement and click **Continue**.

- 8 Click **Agree** to agree to the license agreement.
- 9 Select **Easy Install** and click **Install**. **Easy Install** is recommended for most users. All components necessary for machine operations will be installed.  
  
If you select **Custom Install**, you can choose individual components to install.
- 10 When the message which warns that all applications will close on your computer appears, click **Continue**.
- 11 Select **Typical installation for a network printer** and then click **OK**.
- 12 The SetIP program automatically runs.
- 13 Click **OK** to continue the installation.
- 14 Click **Continue** on the **Read me** window.
- 15 After the installation is finished, click **OK**.

- 16 Open the **Applications** folder > **Utilities** > **Print Setup Utility**.
  - For Mac OS X 10.5-10.6, open the **Applications** folder > **System Preferences** and click **Print & Fax**.
- 17 Click **Add** on the **Printer List**.
  - For Mac OS X 10.5-10.6, click the “+” icon. A display window will pop up.
- 18 For Mac OS X 10.3, select the **IP Printing** tab.
  - For Mac OS X 10.4, click **IP Printer**.
  - For Mac OS X 10.5-10.6, click **IP**.
- 19 Select **HP Jetdirect - Socket** in **Protocol**.



When printing a document containing many pages, printing performance may be enhanced by choosing **Socket** for **Printer Type** option.

- 20 Enter the machine’s IP address in the **Address** input field.
- 21 Enter the queue name in the **Queue** input field. If you cannot determine the queue name for your machine server, try using the default queue first.

**22** For Mac OS X 10.3, if Auto Select does not work properly, select **Samsung** in **Printer Model** and your machine name in **Model Name**.

- For Mac OS X 10.4, if Auto Select does not work properly, select **Samsung** in **Print Using** and your machine name in **Model**.
- For Mac OS X 10.5-10.6, if Auto Select does not work properly, choose **Select Printer Software** and your machine name in **Print Using**.

**23** Click **Add**.

Your machine appears in the **Printer List**, and is set as the default machine.



## Linux

You need to download Linux software packages from the Samsung website to install the printer software (<http://www.samsung.com/printer>).



To install other software:

- See "Installing the Smart Panel" on page 8.
- See "Installing the Printer Settings Utility" on page 9.

## Install the Linux driver and add network printer

- 1** Make sure that the machine is connected to your network and powered on. Also, your machine's IP address should have been set.
- 2** Download the Unified Linux Driver package from the Samsung website.
- 3** Extract the UnifiedLinuxDriver.tar.gz file and open the new directory.
- 4** Double-click the **Linux** folder > **install.sh** icon.
- 5** The Samsung installer window opens. Click **Continue**.
- 6** The add printer wizard window opens. Click **Next**.
- 7** Select network printer and click **Search** button.
- 8** The machine's IP address and model name appears on list field.
- 9** Select your machine and click **Next**.
- 10** Input the printer description and **Next**.

**11** After the machine is added, click **Finish**.

**12** When installation is done, click **Finish**.

## Add a network printer

- 1** Double-click the **Unified Driver Configurator**.
- 2** Click **Add Printer**.
- 3** The **Add printer wizard** window opens. Click **Next**.
- 4** Select **Network printer** and click the **Search** button.
- 5** The printer's IP address and model name appears on list field.
- 6** Select your machine and click **Next**.
- 7** Enter the printer description and click **Next**.
- 8** After the machine is added, click **Finish**.



## UNIX



Make sure your machine supports the UNIX operating system before installing the UNIX printer driver (see basic guide)

To use the UNIX printer driver, you have to install the UNIX printer driver package first, then setup the printer. You can download the UNIX printer driver package from the Samsung website.

## Installing the UNIX printer driver package

The installation procedure is common for all variants of UNIX OS mentioned.

- 1** From the Samsung website, download and unpack the UNIX Printer Driver package to your computer.
- 2** Acquire root privileges.  
`su -`
- 3** Copy the appropriate driver archive to the target UNIX computer.



See administration guide of your UNIX OS for details.

- 4 Unpack the UNIX printer driver package archive.  
For example, on IBM AIX uses the following commands.

```
cd /tmp
```

```
gzip -dc /cdrom/unix/packages/aix_power/  
aix_power.tar.gz | tar -xvf -
```

The “**binaries**” folder consists of **binz**, **install**, **share** files and folders.

- 5 Copy the “**binaries**” folder to any local folder.
- 6 Change to the driver’s “**binaries**” directory.  

```
cd aix_power/binaries
```

- 7 Run the install script.  

```
./install
```

**install** is the installer script file which is used to install or uninstall the UNIX Printer Driver package.

Use “**chmod 755 install**” command to give the permission to the installer script.

8

Execute the “**./install -c**” command to verify installation results.

9

Run ‘**installprinter**’ from the command line. This will bring up the **Add Printer Wizard** window. Setup the printer in this window referring to the following procedures.



On some UNIX OS, for example on Solaris 10, just added printers may not be enabled and/or may not accept jobs. In this case run the following two commands on the root terminal:

```
accept <printer_name>
```

```
enable <printer_name>
```

## Uninstalling the printer driver package



The utility should be used to delete the printer installed in the system.

- a Run “**uninstallprinter**” command from the terminal.  
It will open the **Uninstall Printer Wizard**.  
The installed printers are listed in the drop-down list.
- b Select the printer to be deleted.
- c Click **Delete** to delete the printer from the system.

- d** Execute the “`./install -d`” command to uninstall the whole package.
- e** To verify removal results, execute the “`./install -c`” command.

To re-install it, use the command “`./install`” to reinstall the binaries.

## Setting up the printer

To add the printer to your UNIX system, run ‘installprinter’ from the command line. This will bring up the Add Printer Wizard window. Setup the printer in this window according to the following steps:

- 1** Type the name of the printer.
- 2** Select the appropriate printer model from the model list.
- 3** Enter any description corresponding to the type of the printer in the **Type** field. This is optional.
- 4** Specify any printer description in the **Description** field. This is optional.
- 5** Specify the printer location in the **Location** field.

**6** Type the IP address or DNS name of the printer in the **Device** textbox for network-connected printers. On IBM AIX with **jetdirect Queue type**, only the DNS name is possible-numeric IP address is not allowed.

**7** **Queue type** shows the connection as **lpd** or **jetdirect** in the corresponding list box. Additionally, **usb** type is available on Sun Solaris OS.

**8** Select **Copies** to set the number of copies.

**9** Check the **Collate** option to receive copies already sorted.

**10** Check the **Reverse Order** option to receive copies in the reverse order.

**11** Check the **Make Default** option to set this printer as default.

**12** Click **OK** to add the printer.





**IPv6** is supported properly only in Windows Vista or higher.



If the IPv6 network seems to not be working, set all the network setting to the factory defaults and try again using **Clear Setting** (see "Network" on page 64).

In the IPv6 network environment, follow the next procedure to use the IPv6 address.

- 1 Connect your machine to the network with a network cable.
- 2 Turn on the machine.
- 3 Print a **Network Configuration Report** that will check IPv6 addresses (see "Printing a network configuration report" on page 13).
- 4 Select **Start > Control Panel > Printers and Faxes**.
- 5 Click **Add a printer** in the left pane of the **Printers and Faxes** windows.
- 6 Click **Add a local printer** in the **Add Printer** windows.

7


The **Add Printer Wizard** window appears. Follow the instructions in the window.



If the machine does not work in the network environment, activate IPv6. Refer to the next section followed by.



## Activating IPv6

- 1 Press the  (**Menu**) button on the control panel.
- 2 Press **Network > TCP/IP (IPv6) > IPv6 Activate**.
- 3 Select **On** and press **OK**.
- 4 Turn the machine off and turn it on again.
- 5 Reinstall your printer driver.




## Setting IPv6 addresses

The machine supports the following IPv6 addresses for network printing and managements.

- **Link-local Address:** Self-configured local IPv6 address (Address starts with FE80).
- **Stateless Address:** Automatically configured IPv6 address by a network router.
- **Stateful Address:** IPv6 address configured by a DHCPv6 server.
- **Manual Address:** Manually configured IPv6 address by a user.

## DHCPv6 address configuration (Stateful)

If you have a DHCPv6 server on your network, you can set one of the following options for default dynamic host configuration.

- 1 Press the  (**Menu**) button on the control panel.
- 2 Press **Network > OK > TCP/IP (IPv6) > OK > DHCPv6 Config.**

- 3 Press **OK** to select the required value you want.
  - **DHCPv6 Addr.:** Always use DHCPv6 regardless of router request.
  - **DHCPv6 Off:** Never use DHCPv6 regardless of router request.
  - **Router:** Use DHCPv6 only when requested by a router.

## Manual address configuration

- 1 Start a web browser, such as Internet Explorer, that supports IPv6 addressing as a URL.
- 2 When the **SyncThru™ Web Service** window opens, move the mouse cursor over the **Settings** of the top menu bar and then click **Network Settings**.
- 3 Click **TCP/IPv6** on the left pane of the website.
- 4 Select the **Manual Address** check box. Then, the **Address/Prefix** text box is activated.
- 5 Enter the rest of the address (e.g.,:3FFE:10:88:194::**AAAA**. "A" is the hexadecimal 0 through 9, A through F).
- 6 Click the **Apply** button.



## Using SyncThru™ Web Service

- 1 Start a web browser, such as Internet Explorer, that supports IPv6 addressing as a URL.
- 2 Select one of the IPv6 addresses (**Link-local Address**, **Stateless Address**, **Stateful Address**, **Manual Address**) from **Network Configuration Report** (see "Printing a network configuration report" on page 13).
- 3 Enter the IPv6 addresses (e.g.,: http://[FE80::215:99FF:FE66:7701]).



Address must be enclosed in '[' ]' brackets.



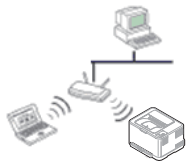
Make sure your machine supports a wireless network. Wireless network may not be available depending on the model.



## Getting started

### Understanding your network type

Typically, you can only have one connection between your computer and the machine at a time.



#### Infrastructure mode

This is an environment generally used for homes and SOHOs (Small Office/ Home Office). This mode uses an access point to communicate with the wireless machine.



#### Ad hoc mode

This mode does not use an access point. The wireless computer and wireless machine communicates directly.

### Wireless network name and network key

Wireless networks require higher security, so when an access point is first set up, a network name (SSID), the type of security used, and a Network Key are created for the network. Locate this information before proceeding with the machine installation.





## Choosing the installation type

You can install a wireless network from the machine's control panel or the computer.

### From the control panel

**For most users, we recommend using the  (WPS) button to configure the wireless network settings.**

-  (WPS): If your machine and an access point (or wireless router) support Wi-Fi Protected Setup™ (WPS), you can easily configure the wireless network settings by pressing the  (WPS) button on the control panel (see "Using the WPS button" on page 28).
- **Control panel:** You can configure wireless parameters with the control panel (see "Using the menu button" on page 32).

## From the computer

**From the computer, we recommend using a USB cable with the program provided in the supplied software CD.**

See "Setup using Windows" on page 34.

- **With a USB cable:** You can simply set up a wireless network using the program on the supplied software CD. Only Windows and Macintosh operating systems are supported (see "Setup using Windows" on page 34 or "Setup using Macintosh" on page 42).




You can also install a wireless network in Printer Settings Utility with a USB cable after installing the driver (Windows and Macintosh operating systems are supported).

- **With a network cable:** You can set up a wireless network using the SyncThru™ Web Service program (see "Using a network cable" on page 48).



## Using the WPS button

If your machine and an access point (or wireless router) support Wi-Fi Protected Setup™ (WPS), you can easily configure the wireless network settings by pressing the  (WPS) button on the control panel without a computer.





If you want to use the wireless network using the infrastructure mode, make sure that the network cable is disconnected from the machine. Using the **WPS (PBC)** button or entering the PIN from the computer to connect to the access point (or wireless router) varies depending on the access point (or wireless router) you are using. Refer to the user's guide of the access point (or wireless router) you are using.

## Items to prepare

- Check if the access point (or wireless router) supports Wi-Fi Protected Setup™ (WPS).
- Check if your machine supports Wi-Fi Protected Setup™ (WPS).
- Networked computer (PIN mode only)

## Choosing your type


There are two methods available to connect your machine to a wireless network using the  (WPS) button on the control panel.

The **Push Button Configuration (PBC)** method allows you to connect your machine to a wireless network by pressing both the  (WPS) button on the control panel of your machine and the WPS (PBC) button on a Wi-Fi Protected Setup™ (WPS)-enabled access point (or wireless router) respectively.

The **Personal Identification Number (PIN)** method helps you connect your machine to a wireless network by entering the supplied PIN information on a Wi-Fi Protected Setup™ (WPS)-enabled access point (or wireless router).


Factory default in your machine is **PBC** mode, which is recommended for a typical wireless network environment.



To change the WPS mode, press  (**Menu**) > **Wireless** > **OK** > **WPS Setting**.

## Machines with an display screen

### ► Connecting in PBC mode

**1** Press and hold the  (WPS) button on the control panel for more than 2 seconds.


The machine starts waiting for up to two minutes until you press the WPS (PBC) button on the access point (or wireless router).

**2** Press the **WPS (PBC)** button on the access point (or wireless router).

The messages are displayed on the display screen in the order below:


- a Connecting:** The machine is connecting to the access point (or wireless router).
- b Connected:** When the machine is successfully connected to the wireless network, the WPS LED light stays on.
- c AP SSID:** After completing the wireless network connection process, the AP's SSID information appears on the display.

## ► Connecting in PIN mode

- 1 Press and hold the  (WPS) button on the control panel for more than 2 seconds.
- 2 The eight-digit PIN appears on the display.  
You need to enter the eight-digit PIN within two minutes to the computer which is connected to the access point (or wireless router).  
The messages are displayed on the display screen in the order below:
  - a **Connecting:** The machine is connecting to the wireless network.
  - b **Connected:** When the machine is successfully connected to the wireless network, the WPS LED light stays on.
  - c **AP SSID:** After completing the wireless network connection process, the AP's SSID information is displayed on the LCD display.


## Machines without an display screen


### ► Connecting in PBC mode

- 1 Press and hold the  (WPS) button on the control panel for about 2 - 4 seconds until the status LED blinks quickly.  
The machine starts connecting to the wireless network. The LED blinks slowly for up to two minutes until you press the PBC button on the access point (or wireless router).
- 2 Press the **WPS (PBC)** button on the access point (or wireless router).
  - a The light blinks fast on the WPS LED. The machine is connecting to the access point (or wireless router).
  - b When the machine is successfully connected to the wireless network, the WPS LED light stays on.

## ► Connecting in PIN mode

- 1 The network configuration report, including PIN, must be printed.

In ready mode, press and hold the  (**Cancel** or **Stop/Clear**) button on the control panel for about 5 seconds. You can find your machine's PIN number.

- 2 Press and hold the  (WPS) button on the control panel for more than 4 seconds until the status LED stays on.

The machine starts connecting to the access point (or wireless router).

- 3 You need to enter the eight-digit PIN within two minutes on the computer that is connected to the access point (or wireless router).

The LED blinks slowly for up to two minutes until you enter the eight-digit PIN.

The WPS LED blinks in the order below:

- a The light blinks fast on the WPS LED. The machine is connecting to the access point (or wireless router).
- b When the machine is successfully connected to the wireless network, the WPS LED light stays on.

## Re-connecting to a network


When the wireless function is off, the machine automatically tries to re-connect to the access point (or wireless router) with the previously used wireless connection settings and address.



In the following cases, the machine automatically re-connects to the wireless network:


- The machine is turned off and on again.
- The access point (or wireless router) is turned off and on again.

## Canceling the connection process

To cancel the wireless network connection when the machine is connecting to the wireless network, press and release the  (**Cancel** or **Stop/Clear**) button on the control panel. **You need to wait 2 minutes to re-connect to the wireless network.**



## Disconnecting from a network

To disconnect the wireless network connection, press the  (WPS) button on the control panel for more than two seconds.

- **When the Wi-Fi network is in idle mode:** The machine is immediately disconnected from the wireless network, and the WPS LED is off.
- **When the Wi-Fi network is being used:** While the machine waits until the current job is finished, the light blinks fast on the WPS LED. Then, the wireless network connection is automatically disconnected. The WPS LED is off.




### Using the menu button

Before starting, you will need to know the network name (SSID) of your wireless network and the network key if it is encrypted. This information was set when the access point (or wireless router) was installed. If you do not know about your wireless environment, please ask the person who set up your network.



After completing the wireless network connection, you need to install a machine driver to print from an application (see "Installing driver over the network" on page 17).

- 1 Press the  (**Menu**) button on the control panel.
- 2 Press **Network > OK > Wireless > OK > WLAN Settings > OK.**
- 3 Press the **OK** to select the setup method you want.
  - **Wizard:** The wireless network interface card in your machine searches for wireless networks in the area and shows the results.
  - **Custom:** You can configure the wireless settings according to your needs.

## Wizard mode

- 1 The wireless network interface card on your machine searches for wireless networks in the area and shows the results.
- 2 Press **Search List > OK > select a the network > OK.**  
You can select a network using SSID.
- 3 Press **WLAN Security > OK > None > OK.**  
If you see another message, go to the next step.

- 4** According to the network you selected, the WLAN security encryption type will be **WEP** or **WPA**.
- In case of **WEP**, press the **Open System** or **SharedKey**.
    - **Open System: Authentication** is not used, and **Encryption** may or may not be used, depending on the need for data security. Enter the **WEP Key** after selecting **Open System**.
    - **SharedKey: Authentication** is used. A device that has a proper WEP Key can access the network. Enter the **WEP Key** after selecting **SharedKey**.
  - In case of **WPA**, enter the WPA Key. The key length should be between 8 and 63 characters long.

- 5** Press **OK**.

## Custom mode

---

- 1** Enter the SSID when **Edit SSID** appears on the top line of the display, the name that identifies a wireless network. SSID is case-sensitive so you need to enter it carefully. Press **OK**.
- 2** Select the type of wireless connections.

- 3** Press **OK** to select the method of **Operation Mode**.
- **Ad-hoc:** Allows wireless devices to communicate directly with each other in a peer-to-peer environment. Go to step 4.
  - **Infrastructure:** Allows wireless devices to communicate with each other through an access point. Go to step 5.
- 4** Press **OK** to select the method of **Channel**.  
If you select **Auto**, the wireless network interface card on your machine will automatically adjust the channels.
- 5** Press **OK** to select the method of **WLAN Security**.
- **None:** This is used when the validation of a wireless device's identity and data encryption are not required for your network. Open system is used for IEEE 802.11 authentication.
  - **Static WEP:** This uses the WEP (Wired Equivalent Privacy) algorithm suggested by IEEE 802.11 standard for security. Static WEP security mode requires a proper WEP key for data encryption, decryption, and IEEE 802.11 authentication. Press **OK** to select the setup method in **Authentication**
    - **Open System: Authentication** is not used, and encryption may or may not be used, depending on the need for data security. Enter the **WEP Key**.

- **SharedKey: Authentication** is used. Enter the **WEP Key** after selecting **SharedKey**.
- **WPA-PSK or WPA2-PSK:** You can select **WPA-PSK** or **WPA2-PSK** to authenticate the print server based on WPA Pre-Shared Key. This uses a shared secret key (generally called Pre-Shared Key passphrase), which is manually configured on the access point and each of its clients.
  - a Press **OK** when **WPA-PSK** or **WPA2-PSK** appears of on the display.
  - b Press **OK** to select **TKIP** or **AES** in **Encryption**. If you select **WPA2-PSK**, press **OK** to select **AES** or **TKIP + AES** in **Encryption**.
  - c Enter the **WPA Key**.

**6** Press **OK**.



Disconnect the network cable (standard or crossover). Your machine should then start communicating wirelessly with the network. In case of Ad-hoc mode, you can use a wireless LAN and wired LAN simultaneously.



## Setup using Windows



Shortcut to **Wireless Setting** program without CD: If you have installed the printer driver once, you can access the **Wireless Setting** program without CD. From the Start menu, select **Programs** or **All Programs** > **Samsung Printers** > **your printer driver name** > **Wireless Setting Program**.

## Access point via USB cable

### ► Items to prepare

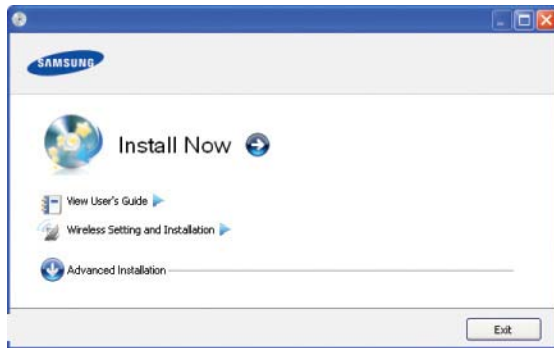
- Access point
- Network-connected computer
- Software CD that was provided with your machine
- The machine installed with a wireless network interface
- USB cable

### ► Creating the infrastructure network

- 1** Check whether the USB cable is connected to the machine.
- 2** Turn on your computer, access point, and machine.

3 Insert the supplied software CD into your CD-ROM drive.

4 Select the **Wireless Setting and Installation** option.



- **Install Now:** If you have already set up the wireless network, click this button to install the machine's driver to use the wireless network machine. If you have not set up the wireless network, click the **Wireless Setting and Installation** button to set up the wireless network before you click this button.
- **Wireless Setting and Installation:** Configure the wireless network settings of your machine with a USB cable then install the machine driver. This is only for users who have not set up the wireless connection before.

5 Read the **License Agreement**, and select **I accept the terms of the License Agreement**. Then, click **Next**.

6 The software searches the wireless network.



If the search has failed, you may check if the USB cable is properly connected between the computer and machine, and follow the instructions on the window.

7 After searching, the window shows the wireless network devices. Select the name (SSID) of the access point you are using and click **Next**.



If you cannot find the network name you want to choose, or if you want to set the wireless configuration manually, click **Advanced Setting**.

- **Enter the wireless Network Name:** Enter the SSID of access point you want (SSID is case-sensitive).
- **Operation Mode:** Select **Infrastructure**.
- **Authentication:** Select an authentication type.
  - Open System:** Authentication is not used, and encryption may or may not be used, depending on the need for data security.
  - Shared Key:** Authentication is used. A device that has a proper WEP key can access the network.
  - WPA Personal or WPA2 Personal:** Select this option to authenticate the print server based on WPA Pre-Shared Key. This uses a shared secret key (generally called Pre-Shared Key pass phrase) which is manually configured on the access point and each of its clients.

- **Encryption:** Select the encryption (None, WEP64, WEP128, TKIP, AES, TKIP AES).
- **Network Key:** Enter the encryption network key value.
- **Confirm Network Key:** Confirm the encryption network key value.
- **WEP Key Index:** If you are using WEP Encryption, select the appropriate **WEP Key Index**.



The wireless network security window appears when the access point has security settings.

The wireless network security window appears. The window may differ according to its security mode: WEP, or WPA.

- **WEP**

Select **Open System** or **Shared Key** for the authentication and enter the WEP security key. Click **Next**.

WEP (Wired Equivalent Privacy) is a security protocol preventing unauthorized access to your wireless network. WEP encrypts the data portion of each packet exchanged on a wireless network using a 64-bit or 128-bit WEP encryption key.

- **WPA**

Enter the WPA shared key and click **Next**.

WPA authorizes and identifies users based on a secret key that changes automatically at regular intervals. WPA also uses TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) for data encryption.

**8** The window shows the wireless network settings and checks if the settings are correct. Click **Next**.

- For the DHCP method

If the IP address assignment method is DHCP, check if DHCP is shown in the window. If it shows Static, click **Change TCP/IP** to change the assignment method to DHCP.

- For the Static method

If the IP address assignment method is Static, check if Static is shown in the window. If it shows DHCP, click **Change TCP/IP** to enter the IP address and other network configuration values for the machine. Before entering the IP address for the machine, you must know the computer's network configuration information. If the computer is set to DHCP, you must contact the network administrator to get the static IP address.

For example:

If the computer's network information is as shown below:

- IP address: 169.254.133.42
- Subnet Mask: 255.255.0.0

Then, the machine's network information should be as follows:

- IP address: 169.254.133.**43**

- Subnet Mask: 255.255.0.0 (Use the computer's subnet mask.)
- Gateway: 169.254.133.1

**9** When the wireless network setting is completed, disconnect the USB cable between the computer and machine. Click **Next**.

**10** The **Wireless Network Setting Complete** window appears. Select **Yes** if you accept the current settings and continue the setup procedure.

Select **No** if you want to return to the beginning screen.

Then, click **Next**.

**11** Click **Next** when the **Confirm Printer Connection** window appears.

**12** Select the components to be installed. Click **Next**.

**13** After selecting the components, you can also change the machine name, set the machine to be shared on the network, set the machine as the default machine, and change the port name of each machine. Click **Next**.

**14** After the installation is finished, a window asking you to print a test page appears. If you want to print a test page, click **Print a test page**.

Otherwise, just click **Next** and go to step 16.

**15** If the test page prints out correctly, click **Yes**.  
If not, click **No** to reprint it.

**16** To register as a user of the machine in order to receive information from Samsung, click **On-line Registration**.

**17** Click **Finish**.

## Ad hoc via USB cable

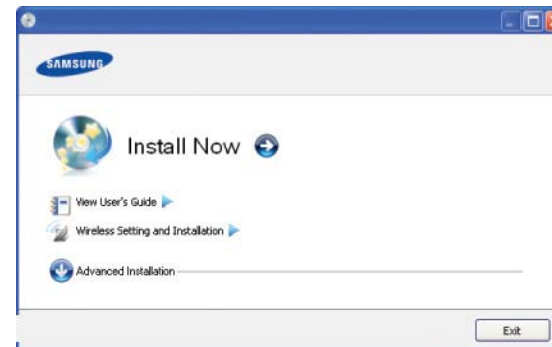
If you do not have an access point (AP), you may still connect the machine wirelessly to your computer by setting up an ad-hoc wireless network by following the simple steps below.

### ► Items to prepare

- Network-connected computer
- Software CD that was provided with your machine
- The machine installed with a wireless network interface
- USB cable

### ► Creating the ad hoc network in Windows

- 1** Check whether the USB cable is connected to the machine.
- 2** Turn on your computer and the wireless network machine.
- 3** Insert the supplied software CD into your CD-ROM drive.
- 4** Select the **Wireless Setting and Installation** option.



- **Install Now:** If you have set the wireless network, click this button to install the machine's driver to use the wireless network machine. If you have not set the wireless network, click **Wireless Setting and Installation** button to set the wireless network before you click this button.
- **Wireless Setting and Installation:** Configure the wireless network settings of your machine's with a USB cable then install the machine driver. This only for users who have not set up the wireless connection before.



**5** Read the **License Agreement**, and select **I accept the terms of the License Agreement**. Then, click **Next**.

**6** The software searches the wireless network.



If the software has failed to search the network, check if the USB cable is connected properly between the computer and machine, and follow the instruction in the window.

**7** After searching the wireless networks, a list of wireless networks your machine has searched appears.

If you want to use the Samsung default ad hoc setting, select the last wireless network on the list, **Network Name(SSID)** is **portthru** and **Signal** is **Printer Self Network**.

Then, click **Next**.

If you want to use other ad hoc settings, select another wireless network from the list.



If you want to change ad hoc settings click the **Advanced Setting** button.

- **Enter the wireless Network Name:** Enter the SSID name you want (SSID is case-sensitive).
- **Operation Mode:** Select ad hoc.

- **Channel:** Select the channel. (**Auto Setting** or 2412 MHz to 2467 MHz).
- **Authentication:** Select an authentication type.  
**Open System:** Authentication is not used, and encryption may or may not be used, depending on the need for data security.  
**Shared Key:** Authentication is used. A device that has a proper WEP key can access the network.
- **Encryption:** Select the encryption (None, WEP64, WEP128).
- **Network Key:** Enter the encryption network key value.
- **Confirm Network Key:** Confirm the encryption network key value.
- **WEP Key Index:** If you are using WEP Encryption, select the appropriate **WEP Key Index**.

The wireless network security window appears when the ad hoc network has security setting.

The wireless network security window appears. Select **Open System** or **Shared Key** for the authentication and click **Next**.

- WEP (Wired Equivalent Privacy) is a security protocol preventing unauthorized access to your wireless network. WEP encrypts the data portion of each packet exchanged on a wireless network using a 64-bit or 128-bit WEP encryption key.



- 8 The window showing the wireless network setting appears. Check the settings and click **Next**.



Before entering the IP address for the machine, you must know the computer's network configuration information. If the computer's network configuration is set to DHCP, the wireless network setting should also be DHCP. Likewise, if the computer's network configuration is set to Static, the wireless network setting should also be Static.

If your computer is set to DHCP and you want to use the Static wireless network setting, you must contact the network administrator to get the static IP address.

- **For the DHCP method**

If the IP address assignment method is DHCP, check if DHCP is shown in the **Wireless Network Setting Confirm** window. If it shows Static, click **Change TCP/IP** to change the assignment method to **Receive IP address automatically (DHCP)**.

- **For the Static method**

If the IP address assignment method is Static, check if Static is shown in the **Wireless Network Setting Confirm** window. If it shows DHCP, click **Change TCP/IP** to enter the IP address and other network configuration values for the machine.

For example:

If the computer's network information is as shown follows:

- IP address: 169.254.133.42
- Subnet Mask: 255.255.0.0

Then, the machine's network information should be as below:

- IP address: 169.254.133.**43**
- Subnet Mask: 255.255.0.0 (Use the computer's subnet mask.)
- Gateway: 169.254.133.**1**

**9** When the wireless network settings are completed, disconnect the USB cable between the computer and machine. Click **Next**.



If the **Change PC Network Setting** window appears, follow the steps in the window.

Click **Next** if you are finished with the computer's wireless network settings.

If you set the computer's wireless network on DHCP, it will take several minutes to receive the IP address.

**10** The **Wireless Network Setting Complete** window appears. Select **Yes** if you accept the current settings and continue the setup procedure.

Select **No** if you want to return to the beginning screen.

Then, click **Next**.

**11** Click **Next** when the **Confirm Printer Connection** window appears.

**12** Select the components to be installed. Click **Next**.

After selecting the components, you can also change the machine name, set the machine to be shared on the network, set the machine as the default machine, and change the port name of each machine. Click **Next**.

**13** After the installation is finished, a window asking you to print a test page appears. If you want to print a test page, click **Print a test page**.

Otherwise, just click **Next** and go to step 15.

**14** If the test page prints out correctly, click **Yes**.

If not, click **No** to reprint it.

**15** To register as a user of the machine in order to receive information from Samsung, click **On-line Registration**.

**16** Click **Finish**.



## Setup using Macintosh

### Items to prepare

---

- Access point
- Network-connected computer
- Software CD that was provided with your machine
- The machine installed with a wireless network interface
- USB cable

### Access point via USB cable

---

- 1** Check whether the USB cable is connected to the machine.
- 2** Turn on your computer, access point, and machine.
- 3** Insert the supplied software CD into your CD-ROM drive.
- 4** Double-click the CD-ROM icon that appears on your Macintosh desktop.
- 5** Double-click the **MAC\_Installer** folder.
- 6** Double-click the **Installer OS X** icon.

- 7 Enter the password and click **OK**.
- 8 Click **Continue**.
- 9 Read the license agreement and click **Continue**.
- 10 Click **Agree** to agree to the license agreement.
- 11 Click **Continue**.
- 12 Select **Easy Install** and click **Install**. **Easy Install** is recommended for most users. All components necessary for machine operations will be installed.  
  
If you select **Custom Install**, you can choose which individual operations will be installed.
- 13 Select the **Wireless Setting and Installation** option.
- 14 The software searches the wireless network.



If the search has failed, you may check if the USB cable is connected between the computer and machine properly, and follow the instructions in the window.

- 15 After searching, the window shows the wireless network devices. Select the name (SSID) of the access point you are using and click **Next**.



When you set the wireless configuration manually, click **Advanced Setting**.

- **Enter the wireless Network Name:** Enter the SSID of the access point you want with (SSID is case-sensitive).
- **Operation Mode:** Select **Infrastructure**.
- **Authentication:** Select an authentication type.  
**Open System:** Authentication is not used, and encryption may or may not be used, depending on the need for data security.  
**Shared Key:** Authentication is used. A device that has a proper WEP key can access the network.  
**WPA Personal or WPA2 Personal:** Select this option to authenticate the print server based on WPA Pre-Shared Key. This uses a shared secret key (generally called Pre-Shared Key pass phrase) that is manually configured on the access point and each of its clients.
- **Encryption:** Select the encryption. (None, WEP64, WEP128, TKIP, AES, TKIP, AES)
- **Network Key:** Enter the encryption network key value.
- **Confirm Network Key:** Confirm the encryption network key value.
- **WEP Key Index:** If you are using WEP Encryption, select the appropriate **WEP Key Index**.

The wireless network security window appears when the access point has security setting.

The wireless network security window appears. The window may differ according to its security mode: WEP or WPA.

- **WEP**

Select **Open System** or **Shared Key** for the authentication and enter the WEP security key. Click **Next**.

WEP (Wired Equivalent Privacy) is a security protocol preventing unauthorized access to your wireless network. WEP encrypts the data portion of each packet exchanged on a wireless network using a 64-bit or 128-bit WEP encryption key.

- **WPA**

Enter the WPA shared key and click **Next**.

WPA authorizes and identifies users based on a secret key that changes automatically at regular intervals. WPA also uses TKIP (Temporal Key Integrity Protocol) and AES (Advanced Encryption Standard) for data encryption.

**16** The window shows the wireless network settings and check if settings are right. Click **Next**.

- **For the DHCP method**

If the IP address assignment method is DHCP, check if DHCP is shown in the window. If it shows Static, click **Change TCP/IP** to change the assignment method to DHCP.

- **For the Static method**

If the IP address assignment method is Static, check if Static is shown in the window. If it shows DHCP, click **Change TCP/IP** to enter the IP address and other network configuration values for the machine. Before entering the IP address for the machine, you must know the computer's network configuration information. If the computer is set to DHCP, you must contact the network administrator to get the static IP address.

For example:

If the computer's network information is as shown follows:

- IP address: 169.254.133.42
- Subnet Mask: 255.255.0.0

Then, the machine's network information should be as follows:

- IP address: 169.254.133.**43**

- Subnet Mask: 255.255.0.0 (Use the computer's subnet mask.)
- Gateway: 169.254.133.1

**17** The wireless network connects according to the network configuration.

**18** When the wireless network settings are completed, disconnect the USB cable between the computer and machine.

**19** Follow the instructions on the screen to complete the installation. After the installation is finished, click **Quit** or **Restart**.

## Ad hoc via USB cable

---

If you do not have an access point (AP), you may still connect the machine wirelessly to your computer by setting up an ad hoc wireless network by following these simple directions.

### ► Items to prepare

- Network-connected computer
- Software CD that provided with your machine
- The machine installed with a wireless network interface

- USB cable

### ► Creating the ad hoc network in Macintosh

- 1** Check whether the USB cable is connected to the machine.
- 2** Turn on your computer and machine.
- 3** Insert the supplied software CD into your CD-ROM drive.
- 4** Double-click the CD-ROM icon that appears on your Macintosh desktop.
- 5** Double-click the **MAC\_Installer** folder.
- 6** Double-click the **Installer OS X** icon.
- 7** Enter the password and click **OK**.
- 8** Click **Continue**.
- 9** Read the license agreement and click **Continue**.
- 10** Click **Agree** to agree to the license agreement.

**11** Select **Easy Install** and click **Install**. **Easy Install** is recommended for most users. All components necessary for machine operations will be installed.

If you select **Custom Install**, you can choose individual operations will be installed.

**12** Click **Wireless Setting and Installation**.

**13** The software searches the wireless network devices.



If the search has failed, check if the USB cable is connected between the computer and machine properly, and follow the instructions in the window.

**14** After searching the wireless networks, a list of wireless networks your machine has searched appears.

If you want to use the Samsung default ad hoc setting, select the last wireless network on the list, which **Network Name(SSID)** is **portthru** and **Signal** is **Printer Self Network**.

Then, click **Next**.

If you want to use other ad hoc settings, select another wireless network from the list.



If you want to change ad hoc settings click the **Advanced Setting** button.

- **Enter the wireless Network Name:** Enter the SSID name you want (SSID is case-sensitive).
- **Operation Mode:** Select ad hoc.
- **Channel:** Select the channel (**Auto Setting** or 2412 MHz to 2467 MHz).
- **Authentication:** Select an authentication type.
  - Open System:** Authentication is not used, and encryption may or may not be used, depending on the need for data security.
  - Shared Key:** Authentication is used. A device that has a proper WEP key can access the network.
- **Encryption:** Select the encryption (None, WEP64, WEP128).
- **Network Key:** Enter the encryption network key value.
- **Confirm Network Key:** Confirm the encryption network key value.
- **WEP Key Index:** If you are using WEP Encryption, select the appropriate **WEP Key Index**.



The wireless network security window appears when the ad hoc network has security setting.

The wireless network security window appears. Select **Open System** or **Shared Key** for the authentication and click **Next**.

- WEP (Wired Equivalent Privacy) is a security protocol preventing unauthorized access to your wireless network. WEP encrypts the data portion of each packet exchanged on a wireless network using a 64-bit or 128-bit WEP encryption key.

**15** The window showing the wireless network settings appears. Check the settings and click **Next**.





Before entering the IP address for the machine, you must know the computer's network configuration information. If the computer's network configuration is set to DHCP, the wireless network setting should also be DHCP. Likewise, if the computer's network configuration is set to Static, the wireless network setting should also be Static.

If your computer is set to DHCP and you want to use Static wireless network setting, you must contact the network administrator to get the static IP address.

- **For the DHCP method**

If the IP address assignment method is DHCP, check if DHCP is shown in the **Wireless Network Setting Confirm** window. If it shows Static, click **Change TCP/IP** to change the assignment method to **Receive IP address automatically (DHCP)**.

- **For the Static method**

If the IP address assignment method is Static, check if Static is shown in the **Wireless Network Setting Confirm** window. If it shows DHCP, click **Change TCP/IP** to enter the IP address and other network configuration values for the machine.

For example:

If the computer's network information is as shown follows:

- IP address: 169.254.133.42
- Subnet Mask: 255.255.0.0

Then, the machine's network information should be as below:

- IP address: 169.254.133.43
- Subnet Mask: 255.255.0.0 (Use the computer's subnet mask.)
- Gateway: 169.254.133.1

**16** The wireless network connects according to the network configuration.

**17** When the wireless network setting is completed, disconnect the USB cable between the computer and machine.

**18** Follow the instructions on the screen to complete the installation. After the installation is finished, click **Quit** or **Restart**.



### Using a network cable

Your machine is a network compatible machine. To enable your machine to work with your network, you will need to perform some configuration procedures.



- After completing the wireless network connection, you need to install a machine driver to print from an application (See "Installing driver over the network" on page 17).
- See your network administrator, or the person that set up your wireless network, for information about your network configuration.

### Items to prepare

- Access point
- Network-connected computer
- Software CD that was provided with your machine
- The machine installed with a wireless network interface
- Network cable

### Printing a network configuration report

You can identify the network settings of your machine by printing a network configuration report.

See "Printing a network configuration report" on page 13.

### IP setting using SetIP Program (Windows)

This program is used to manually set the network IP address of your machine using its MAC address to communicate with the machine. The MAC address is the hardware serial number of the network interface and can be found in the **Network Configuration Report**.

See "Setting IP address" on page 13.

### Configuring the machine's wireless network

Before starting you will need to know the network name (SSID) of your wireless network and the network key if it is encrypted. This information was set when the access point (or wireless router) was installed. If you do not know about your wireless environment, please ask the person who set up your network.

To configure wireless parameters, you can use **SyncThru™ Web Service**.

### Using SyncThru™ Web Service

Before starting wireless parameter configuration, check the cable connection status.

1 Check whether or not the network cable is connected to the machine. If not, connect the machine with a standard network cable.

2 Start a web browser such as Internet Explorer, Safari or Firefox and enter your machine's new IP address in the browser window.

For example,



3 Click **Login** on the upper right of the SyncThru™ Web Service website.

4 Type in the **ID** and **Password** then click **Login**.

- **ID: admin**
- **Password: sec00000**

5 When the **SyncThru™ Web Service** window opens, click **Network Settings**.

6 Click **Wireless > Wizard**.



**Wizard** will help you setup the wireless network configuration. However, if you want to set the wireless network directly, select **Custom**.

7 Select the one **Network Name(SSID)** in the list.

- **SSID:** SSID (Service Set Identifier) is a name that identifies a wireless network, access points, and wireless devices attempting to connect to a specific wireless network must use the same SSID. The SSID is case-sensitive.
- **Operation Mode:** **Operation Mode** refers to the type of wireless connections (See "Wireless network name and network key" on page 27).
  - **Ad-hoc:** Allows wireless devices to communicate directly with each other in a peer-to-peer environment.
  - **Infrastructure:** Allows wireless devices to communicate with each other through an access point.



If your network's **Operation Mode** is **Infrastructure**, select the SSID of the access point. If the **Operation Mode** is **Ad-hoc**, select the machine's SSID. Note that "portthru" is the default SSID of your machine.

- 8 Click **Next**.  
If the wireless security setting window appears, enter the registered password (network key) and click **Next**.
- 9 The confirmation window appears, please check your wireless setup. If the setup is right, click **Apply**.



Disconnect the network cable (standard or network). Your machine should then start communicating wirelessly with the network. In case of Ad-hoc mode, you can use a wireless LAN and wired LAN simultaneously.



## Turning the Wi-Fi network on/off

- 1 Check whether the network cable is connected to the machine. If not, connect the machine with a standard network cable.
- 2 Start a web browser such as Internet Explorer, Safari or Firefox and enter your machine's new IP address in the browser window.

For example,

 <http://192.168.1.133/>

- 3 Click **Login** on the upper right of the SyncThru™ Web Service website.
- 4 Type in the **ID** and **Password** then click **Login**.
  - **ID: admin**
  - **Password: sec00000**
- 5 When the **SyncThru™ Web Service** window opens, click **Network Settings**.
- 6 Click **Wireless > Custom**.  
You can also turn the Wi-Fi network on/off.



## Troubleshooting

### Problems during setup or driver installation

#### ► Printers Not Found

- Your machine may not be turned on. Turn on your computer and the machine.
- USB cable is not connected between your computer and machine. Connect machine to your computer using the USB cable.

- The machine does not support a wireless network. Check the machine's user's guide included on the software CD supplied with your machine and prepare a wireless network machine.

## ▶ Connecting Failure - Not Found SSID

- The machine is unable to search the network name (SSID) you have selected or entered. Check the network name (SSID) on your access point and try connecting again.
- Your access point is not turned on. Turn on your access point.

## ▶ Connecting Failure - Invalid Security

- You configured security incorrectly. Check the configured security on your access point and machine.

## ▶ Connecting Failure - General Connection Error

- Your computer is not receiving a signal from your machine. Check the USB cable and your machine's power.

## ▶ Connecting Failure - Connected Wired Network

- Your machine is connected with a wired network cable. Remove the wired network cable from your machine.

## ▶ PC Connection Error

- The configured network address is unable to connect between your computer and machine.
  - For a DHCP network environment  
The receives the IP address automatically (DHCP) when computer is configured to DHCP.
  - For a Static network environment  
The machine uses the static address when the computer is configured to static address.  
For example:  
If the computer's network information is as shown below:
    - IP address: 169.254.133.42

- Subnet Mask: 255.255.0.0

Then, the machine's network information should be as below:

- IP address: 169.254.133.43
- Subnet Mask: 255.255.0.0 (Use the computer's subnet mask.)
- Gateway: 169.254.133.1

### Other problems

If problems occur while using the machine on a network, check the following:



For information on the access point (or wireless router), refer to its own user's guide.

- Your computer, access point (or wireless router), or machine may not be turned on.
- Check the wireless reception around the machine. If the router is far from the machine or there is an obstacle, you might have difficulty receiving the signal.
- Cycle the power for the access point (or wireless router), machine, and computer. Sometimes cycling the power can recover network communication.
- Check whether firewall software (V3 or Norton) is blocking the communication.  
If the computer and the machine are connected on the same network and it cannot be found when searching, firewall software might be blocking the communication. Refer to the user's guide for the software to turn it off and try searching for the machine again.
- Check whether the machine's IP address is allocated correctly. You can check the IP address by printing the network configuration report.
- Check whether the access point (or wireless router) has a configured security (password). If it has a password, refer to the access point (or wireless router) administrator.
- Check the machine's IP address. Reinstall the machine driver and change the settings to connect to the machine on the network. Due to the characteristics of DHCP, the allocated IP address could change if the machine is not used for a long time or if the access point has been reset.
- Check the wireless environment. You might not be able to connect to the network in the infrastructure environment where you need to type in a user's information before connecting to access point (or wireless router).
- This machine only supports IEEE 802.11 b/g/n and Wi-Fi. Other wireless communication types (e.g., Bluetooth) are not supported.

- When using the ad hoc mode, in operating systems such as Windows Vista, you might need to set the wireless connection setting every time you use the wireless machine.
- You cannot use Infrastructure mode and Ad hoc mode at the same time for Samsung wireless network machines.
- The machine is within the range of the wireless network.
- The machine is located away from obstacles that could block the wireless signal.

Remove any large metal objects between the access point (or wireless router) and the machine.

Make sure the machine and wireless access point (or wireless router) are not separated by poles, walls, or support columns containing metal or concrete.

- The machine is located away from other electronic devices that may interfere with the wireless signal.

Many devices can interfere with the wireless signal, including a microwave oven and some Bluetooth devices.


### 3. Useful setting menus



This chapter explains how to browse the current status of your machine, and the method of setting for advanced machine setup.

• <b>Information</b>	<b>56</b>
• <b>Layout</b>	<b>57</b>
• <b>Paper</b>	<b>58</b>
• <b>Graphic</b>	<b>59</b>
• <b>System setup</b>	<b>60</b>
• <b>Emulation</b>	<b>63</b>
• <b>Network</b>	<b>64</b>
• <b>Admin setup</b>	<b>65</b>



The control panel provides access to various menus to set up the machine or use the machine's functions. These menus can be accessed by pressing  (**Menu**).

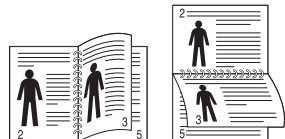
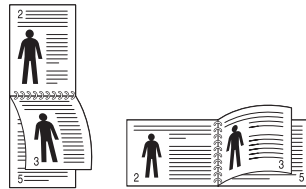
- An asterisk (\*) appears next to the currently selected menu.
- Some menus may not appear on the display depending on options or models. If so, it is not applicable to your machine.
- For models that do not have the display screen on the control panel, this feature is not applicable.
- Some menu names may differ from your machine depending on its options or the models.




Item	Description
<b>Menu Map</b>	Prints the menu map which shows the layout and current settings of this machine.
<b>Configuration</b>	Prints a report on the machine's overall configuration.
<b>Supplies Info.</b>	Prints supplies' information page.
<b>Demo Page</b>	Prints the demo page to check whether your machine is printing properly or not.
<b>PCL Font (PCL Font List)</b>	Prints the PCL font list.
<b>PS Font (PS Font List)</b>	Prints the PS font list.
<b>EPSON Font (EPSON Font List)</b>	Prints the EPSON font list.
<b>KSC5843 Font List</b>	Prints the KS font list.
<b>KSC5895 List</b>	Prints the KS5895 font list.
<b>KSSM Font List</b>	Prints the KSSM font list.
<b>Stored Job List</b>	Prints jobs currently stored in the optional memory or on a hard disk (HDD).
<b>Usage Counter</b>	Prints a usage page. The usage page contains the total number of pages printed.

Item	Description
<b>Completed Job</b>	Prints list of completed jobs.
<b>Accounting Report</b>	This is used only available when Job Accounting is enabled from the SyncThru™ Web Admin Service. You can print a report of printout counts for each user.

Item	Description
<b>Orientation</b>	Selects the direction in which information is printed on a page.
<b>Common Margin</b>	<ul style="list-style-type: none"> <li>• <b>Simplex Margin:</b> Sets the margin for one-sided printing.</li> <li>• <b>Duplex:</b> Sets the margin for double-sided printing.</li> <li>• <b>Binding:</b> When printing on both sides of the paper, side A's margin closest to the binding will be the same as side B's margin closest to the binding. Likewise, the sides' margins farthest from the binding will be the same.</li> </ul>
<b>MP Tray</b>	<p>Sets the paper margins in multi-purpose tray.</p> <ul style="list-style-type: none"> <li>• <b>Simplex:</b> Sets the margin for one-sided printing.</li> <li>• <b>Duplex:</b> Sets the margins for double-sided printing.</li> </ul>
<b>Tray X</b>	<p>Sets the paper margins in trays.</p> <ul style="list-style-type: none"> <li>• <b>Simplex:</b> Sets the margin for one-sided printing.</li> <li>• <b>Duplex:</b> Sets the margins for double-sided printing.</li> </ul>

Item	Description
<b>Emulation Mar. (Emulation Margin)</b>	<p>Sets the paper margins for emulation print page.</p> <ul style="list-style-type: none"> <li>• <b>Top Margin:</b> Sets the top margin, from 0.0 to 250 mm.</li> <li>• <b>Left Margin:</b> Sets the left margin, from 0.0 to 164 mm.</li> </ul>
<b>Duplex</b>	<p>To print on both sides of the paper, choose the binding edge.</p> <ul style="list-style-type: none"> <li>• <b>Off:</b> Disables this option.</li> <li>• <b>Long Edge:</b> This binding is the conventional layout used in bookbinding.</li> </ul>  <ul style="list-style-type: none"> <li>• <b>Short Edge:</b> This binding is the conventional layout used in calendars.</li> </ul> 
<b>Landscape Stapling Position</b>	Selects the location of the staple.

Item	Description
<b>Copies</b>	Selects the number of copies.
<b>MP Tray / [Tray&lt;x&gt;]</b>	<ul style="list-style-type: none"><li>• <b>Paper Size:</b> Selects the default paper size.</li><li>• <b>Paper Type:</b> Selects the paper type currently loaded in the tray.</li></ul>
<b>Paper Source</b>	Sets from which tray to use paper.
<b>Tray Chaining (Auto Tray Switch)</b>	<p>When you select any other value except <b>Auto</b> from <b>Paper Source</b> and the selected tray is empty, you can set the machine to automatically print from other trays.</p> <div data-bbox="331 850 1012 1013"> If you select <b>Auto</b> from <b>Paper Source</b>, this message does not appear.</div>
<b>Tray Confirm</b>	Activates the tray confirmation message. If you open and close a tray, a window asking you whether to set the paper size and type for the tray just opened appears.


Item	Description
<b>Resolution</b>	Specifies the number of dots printed per inch (dpi). The higher the setting, the sharper printed characters and graphics.
<b>Darken Text (Clear Text)</b>	Prints text darker than on a normal document.
<b>Darkness</b>	Lightens or darkens the print on the page. The <b>Normal</b> setting usually produces the best result. Use the <b>Light</b> toner density setting to save toner.

Item	Description
<b>Date &amp; Time</b>	Sets the date and time.
<b>Clock Mode</b>	Selects the format for displaying time between 12 hr and 24 hr.
<b>Form Menu</b>	<ul style="list-style-type: none"> <li>• <b>Off:</b> Prints in normal mode.</li> <li>• <b>Single Form:</b> Prints all page using the first form.</li> <li>• <b>Double Form:</b> Prints the front page using the first form and the back page using the second form.</li> </ul>
<b>Select Form</b>	Form overlay is images stored on the printer's hard disk as a special file format that can be printed in layers on any document.
<b>HDD Spooling</b>	When <b>On</b> , stores documents on the hard disk drive (HDD) for network printing.
<b>Language</b>	Sets the language of the text that appears on the control panel display.
<b>Default Paper Size</b>	You can set the default paper size to use.

Item	Description
<b>Power Save</b>	<p>Sets how long the machine waits before going to power save mode.</p> <p>When the machine does not receive data for an extended period of time, power consumption is automatically lowered.</p>
<b>Wakeup Event</b>	<p>You can set the condition to wake up from power-save mode. Set the item on.</p> <ul style="list-style-type: none"> <li>• <b>Button Press:</b> When you press any button except power button, the machine wake up from the power save mode.</li> <li>• <b>Printer:</b> When you open or close the paper tray, the machine wake up from the power save mode.</li> </ul>
<b>Auto Continue</b>	<p>Determine whether or not the machine continues printing when it detects the paper does not match the paper settings.</p> <ul style="list-style-type: none"> <li>• <b>Off:</b> If a paper mismatch occurs, the machine waits until you insert the correct paper.</li> <li>• <b>On:</b> If a paper mismatch occurs, an error message will display. The machine waits for about 30 second, then automatically clear the message and continue printing.</li> </ul>
<b>Altitude Adj.</b>	Optimize print quality according to the machine's altitude.


Item	Description
<b>Auto CR</b>	Allows you to append the required carriage return to each line feed, which is useful for Unix or DOS users.
<b>Job Timeout</b>	When there is no input for a certain period of time, the machine cancels the current job. You can set the amount of time the machine will wait before canceling the job.
<b>Multi-Bin</b>	<ul style="list-style-type: none"><li>• <b>Mode:</b> Selects the multi-bin mode you want to use.</li><li>• <b>Default Bin:</b> Selects the bin to use as a default.</li></ul>

Item	Description
<b>Maintenance</b>	<ul style="list-style-type: none"><li>• <b>Clean Drum:</b> Cleans the OPC drum of the cartridge by printing a sheet.</li><li>• <b>Clean Fuser:</b> Cleans the fuser by printing a sheet.</li><li>• <b>CLR Empty Msg.:</b> This option appears only when toner cartridge is empty.</li><li>• <b>Supplies Info.:</b> Allows you to check how many pages are printed and how much toner is left in the cartridge.</li><li>• <b>TonerLow Alert:</b> If toner in the cartridge has run out, a message informing the user to change the toner cartridge appears. You can set the option for this message to appear or not.</li><li>• <b>Paper Stacking:</b> If you use a machine in a humid area, or you are using the damp print media caused by a high humidity, the print-outs on the output tray may be curled and may not be stacked properly. In this case, you can set the machine to use this function to let print-outs stacked firmly. But, using this function will make the print speed slow.</li></ul>
<b>Import Setting</b>	Imports data stored on a USB memory stick to the machine.

Item	Description
Export Setting	Exports data stored on a USB memory stick to the machine.
Toner Save	Activating this mode extends the life of your toner cartridge and reduces your cost per page beyond what one would experience in the normal mode, but it reduces print quality.
Quiet Mode	You can reduce the printing noise by turning this menu on. However, the printing speed and quality may be declined.
Eco Setup	<p>Allows you to save print resources and enables eco-friendly printing.</p> <ul style="list-style-type: none"><li>• <b>Default Mode:</b> Select whether to turn the Eco mode on or off.</li></ul> <div data-bbox="336 1006 1008 1250"><p><b>Onforce:</b> Sets the Eco mode on with password. If a user wants to turn the Eco mode on/off, the user needs to enter the password.</p></div> <ul style="list-style-type: none"><li>• <b>Change Template:</b> Selects the eco template set from the SyncThru™ Web Service.</li></ul>
Clear Setting	Restores the machine's factory default settings.

Item	Description
<b>Emulation Type</b>	The machine language defines how the computer communicates with the machine.
<b>Setup</b>	Sets the detailed settings for the selected emulation type.



Option	Description
<b>TCP/IP (IPv4)</b>	Selects the appropriate protocol and configure parameters to use the network environment.   There are lots of parameters to be set. If you are not sure, leave as is, or consult the network administrator.
<b>TCP/IP (IPv6)</b>	Selects this option to use the network environment through IPv6 (see "IPv6 configuration" on page 24).
<b>Ethernet Speed</b>	Configure the network transmission speed.
<b>802.1x</b>	You can select the user authentication for network communication. For detailed information consult the network administrator.
<b>Wireless</b>	Selects this option to use the wireless network.
<b>Clear Setting</b>	Reverts the network settings to the default values.
<b>Network Conf. (Network Configuration)</b>	This list shows information on your machine's network connection and configuration.
<b>Net. Activate</b>	You can set whether to use Ethernet on or off.

Option	Description
<b>Http Activate</b>	You can set whether to use SyncThru™ Web Service or not.

Item	Description
<b>Password Protect</b>	Sets the password to access the <b>Admin Setup</b> menu. Select <b>On</b> to use this option and enter the password.
<b>Change Password</b>	Changes the machine's password for accessing the <b>Admin Setup</b> .
<b>Maintenance</b>	<ul style="list-style-type: none"><li>• <b>Clean Fuser:</b> Cleans the fuser by printing a sheet. The printed sheet has toner debris on it.</li><li>• <b>CLR Empty Msg.:</b> Prevents the <b>TonerLow Alert</b> message from appearing on the display.</li><li>• <b>Supplies Info.:</b> Allows you to check how many pages are printed and how much toner is left in the cartridge.</li><li>• <b>TonerLow Alert:</b> If toner in the cartridge has run out, a message informing the user to change the toner cartridge appears. You can set the option for this message to appear or not.</li><li>• <b>Ram Disk:</b> Enables/disables RAM disk to manage jobs. Depending on the installed optional memory size, you can set the RAM disk size to between 32 and 64 MB. This option does not appear if you have installed hard disk drive (HDD).</li></ul>

## 4. Special features



This chapter explains special printing features.

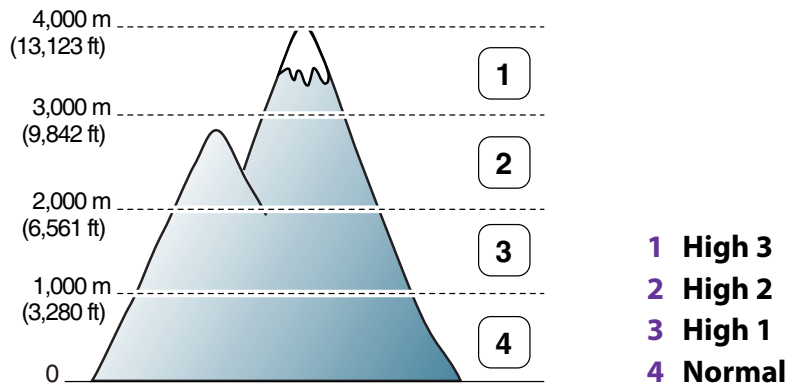
- **Altitude adjustment** 67
- **Changing the font setting** 68
- **Changing the default print settings** 69
- **Setting your machine as a default machine** 70
- **Using advanced print features** 71
- **Using Direct Printing Utility (Windows only)** 78
- **Using memory/hard drive features** 80
- **Macintosh printing** 81
- **Linux printing** 83
- **Unix printing** 85



The procedures in this chapter are mainly based on Windows 7.

Print quality is affected by atmospheric pressure, which is determined by the height of the machine above sea level. The following information will guide you on how to set your machine for the best print quality.

Before you set the altitude value, determine the altitude where you are.



You can set the altitude value from **Device Settings** or **Machine** section in Printer Settings Utility program.

- For Windows user, see "Device Settings" on page 95.
- For Macintosh, Linux, or Unix OS user, see "Using Smart Panel (Macintosh and Linux only)" on page 97.



- If your machine is connected to the network, you can set the altitude via SyncThru™ Web Service.
- You can also set the altitude in **System Setup** option on the machine's display.

Your machine has preset the font for your region or country.

If you want to change the font or set the font for special condition, such as the DOS environment, you can change the font setting from **Emulation** section in Printer Setting Utility program.

- For Windows user, see "Device Settings" on page 95.
- For Macintosh, Linux, or Unix OS user, see "Using Smart Panel (Macintosh and Linux only)" on page 97.



- If your machine is connected to the network, you can set the font setting via SyncThru™ Web Service.
- You can also change the font setting in **Emulation** option on the machine's display.
- The following information shows the proper font list for corresponding languages.
  - **Russian:** CP866, ISO 8859/5 Latin Cyrillic
  - **Hebrew:** Hebrew 15Q, Hebrew-8, Hebrew-7 (Israel only)
  - **Greek:** ISO 8859/7 Latin Greek, PC-8 Latin/Greek
  - **Arabic & Farsi:** HP Arabic-8, Windows Arabic, Code Page 864, Farsi, ISO 8859/6 Latin Arabic
  - **OCR:** OCR-A, OCR-B

- 1 Click the Windows **Start** menu.
- 2 For Windows Server 2000, select **Settings > Printers**.
  - For Windows XP/Server 2003, select **Printer and Faxes**.
  - For Windows Server 2008/Vista, select **Control Panel > Hardware and Sound > Printers**.
  - For Windows 7, select **Control Panel > Devices and Printers**.
  - For Windows Server 2008 R2, select **Control Panel > Hardware > Devices and Printers**.
- 3 Right-click on your machine.
- 4 For Windows XP/Server 2003/Server 2008/Vista, select **Printing Preferences**.

For Windows 7 or Windows Server 2008 R2, from context menus, select **Printing preferences**.



If you want to change the settings for each print job, change it in **Printing Preferences**.



If **Printing preferences** has a ?, you can select other printer drivers connected to the selected printer.

- 5 Change the settings on each tab.
- 6 Click **OK**.

- 1 Click the Windows **Start** menu.
- 2 For Windows Server 2000, select **Settings > Printers**.
  - For Windows XP/Server 2003, select **Printer and Faxes**.
  - For Windows Server 2008/Vista, select **Control Panel > Hardware and Sound > Printers**.
  - For Windows 7, select **Control Panel > Devices and Printers**.
  - For Windows Server 2008 R2, select **Control Panel > Hardware > Devices and Printers**.
- 3 Select your machine.
- 4 Right-click your machine and select **Set as Default Printer**.



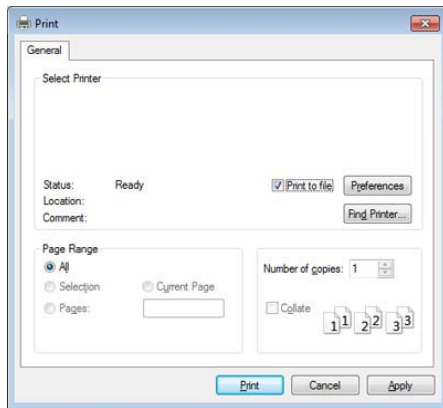
For Windows 7 or Windows Server 2008 R2, if **Set as default printer** has a ?, you can select other printer drivers connected to the selected printer.



## Printing to a file (PRN)

You will sometimes need to save the print data as a file.

- 1 Check the **Print to file** box in the **Print** window.



- 2 Click **Print**.
- 3 Type in the destination path and the file name, and then click **OK**.

For example, **c:\Temp\file name**.



If you type in only the file name, the file is automatically saved in **My Documents**, **Documents and Settings**, or **Users**. The saved folder may differ, depending on your operating system or the application you are using.


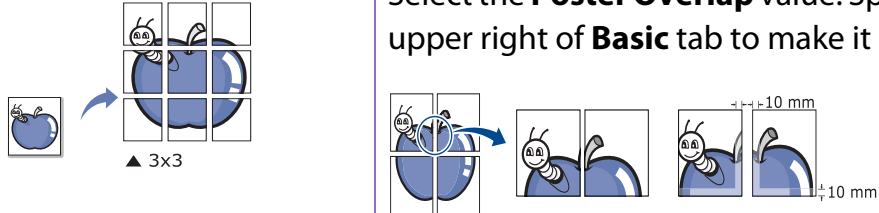







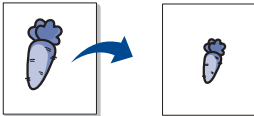
## Understanding special printer features


You can use advanced printing features when using your machine.

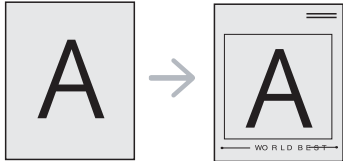

To take advantage of the printer features provided by your printer driver, click **Properties** or **Preferences** in the application's **Print** window to change the print settings. The machine name, that appears in the printer properties window may differ depending on the machine in use.




Item	Description
<p data-bbox="46 342 407 378"><b>Multiple Pages per Side</b></p> 	<p data-bbox="436 342 2047 423">Selects the number of pages to print on a single sheet of paper. To print more than one page per sheet, the pages will be reduced in size and arranged in the order you specify. You can print up to 16 pages on one sheet.</p>
<p data-bbox="46 656 279 691"><b>Poster Printing</b></p> 	<p data-bbox="436 607 2047 688">Prints a single-page document onto 4 (Poster 2x2), 9 (Poster 3x3), or 16 (Poster 4x4) sheets of paper, for the purpose of pasting the sheets together to form one poster-size document.</p> <p data-bbox="436 708 2047 789">Select the <b>Poster Overlap</b> value. Specify <b>Poster Overlap</b> in millimeters or inches by selecting the radio button on the upper right of <b>Basic</b> tab to make it easier to paste the sheets together.</p>
<p data-bbox="46 1094 300 1130"><b>Booklet Printing</b></p> 	<p data-bbox="436 976 2047 1057">Prints your document on both sides of a sheet of paper and arranges the pages so that the paper can be folded in half after printing to produce a booklet.</p> <p data-bbox="436 1076 1906 1112">If you want to make a booklet, you need to print on Letter, Legal, A4, US Folio, or Oficio sized print media.</p> <div data-bbox="436 1157 2062 1425"><p data-bbox="575 1198 2047 1279">The <b>Booklet Printing</b> option is not available for all paper sizes. Select the available paper <b>Size</b> option under the <b>Paper</b> tab to see what paper sizes are available.</p><p data-bbox="575 1300 2005 1382">If you select an unavailable paper size, this option can be automatically canceled. Select only available paper (paper without ⚠ or ✖ mark).</p></div>

Item	Description
<p><b>Double-sided Printing</b></p>	<p>Print on both sides of a sheet of paper (duplex). Before printing, decide how you want your document oriented.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;">  <ul style="list-style-type: none"> <li>You can use this feature with Letter, Legal, A4, US Folio or Oficio sized paper</li> <li>If your machine does not have a duplex unit, you should complete the printing job manually. The machine prints every other page of the document first. After that, a message appears on your computer.</li> <li><b>Skip Blank Pages</b> feature does not work when you select the duplex option.</li> </ul> </div>
<p><b>Double-sided Printing (Option)</b></p>	<ul style="list-style-type: none"> <li><b>Printer Default:</b> If you select this option, this feature is determined by the settings you have selected on the control panel of the machine. This option is available only when you use the PCL printer driver.</li> <li><b>None:</b> Disables this feature.</li> <li><b>Long Edge:</b> This option is the conventional layout used in bookbinding.</li> </ul> <div style="margin-top: 10px;">  </div> <ul style="list-style-type: none"> <li><b>Short Edge:</b> This option is the conventional layout used in calendars.</li> </ul> <div style="margin-top: 10px;">  </div> <ul style="list-style-type: none"> <li><b>Reverse Double-Sided Printing:</b> Check this option to reverse the print order when duplex printing.</li> </ul>
<p><b>Paper Options</b></p>	<p>Changes the size of a document to appear larger or smaller on the printed page by entering in a percentage by which to enlarge or decrease the document.</p> <div style="margin-top: 10px;">  </div>

Item	Description
<p><b>Watermark</b></p> 	<p>The watermark option allows you to print text over an existing document. For example, you use it when you want to have large gray letters reading “DRAFT” or “CONFIDENTIAL” printed diagonally across the first page or all pages of a document.</p>
<p><b>Watermark</b> (Creating a watermark)</p>	<ul style="list-style-type: none"> <li><b>a</b> To change the print settings from your software application, access <b>Printing Preferences</b>.</li> <li><b>b</b> Click the <b>Advanced</b> tab, select <b>Edit</b> from the <b>Watermark</b> drop-down list. The <b>Edit Watermarks</b> window appears.</li> <li><b>c</b> Enter a text message in the <b>Watermark Message</b> box. You can enter up to 256 characters. The message displays in the preview window.</li> </ul>
<p><b>Watermark</b> (Editing a watermark)</p>	<ul style="list-style-type: none"> <li><b>a</b> To change the print settings from your software application, access <b>Printing Preferences</b>.</li> <li><b>b</b> Click the <b>Advanced</b> tab, select <b>Edit</b> from the <b>Watermark</b> drop-down list. The <b>Edit Watermarks</b> window appears.</li> <li><b>c</b> Select the watermark you want to edit from the <b>Current Watermarks</b> list and change the watermark message and options.</li> <li><b>d</b> Click <b>Update</b> to save the changes.</li> <li><b>e</b> Click <b>OK</b> or <b>Print</b> until you exit the <b>Print</b> window.</li> </ul>
<p><b>Watermark</b> (Deleting a watermark)</p>	<ul style="list-style-type: none"> <li><b>a</b> To change the print settings from your software application, access <b>Printing Preferences</b>.</li> <li><b>b</b> Click the <b>Advanced</b> tab, select <b>Edit</b> from the <b>Watermark</b> drop-down list. The <b>Edit Watermarks</b> window appears.</li> <li><b>c</b> Select the watermark you want to delete from the <b>Current Watermarks</b> list and click <b>Delete</b>.</li> <li><b>d</b> Click <b>OK</b> or <b>Print</b> until you exit the <b>Print</b> window.</li> </ul>

Item	Description
<p data-bbox="50 516 170 553">Overlay</p> 	<p data-bbox="432 326 1339 363">This option is available only when you use the PCL printer driver.</p> <p data-bbox="432 380 2053 591">An overlay is text and/or images stored in the computer hard disk drive (HDD) as a special file format that can be printed on any document. Overlays are often used to take the place of letterhead paper. Rather than using preprinted letterhead, you can create an overlay containing exactly the same information that is currently on your letterhead. To print a letter with your company's letterhead, you do not need to load preprinted letterhead paper in the machine: just print the letterhead overlay on your document.</p> <p data-bbox="432 612 1703 649">To use a page overlay, you must create a new page overlay containing your logo or image.</p> <div data-bbox="432 695 2062 938" style="background-color: #f0f0f0; padding: 10px;">  <ul data-bbox="575 727 2053 899" style="list-style-type: none"> <li>• The overlay document size must be the same as the document you print with the overlay. Do not create an overlay with a watermark.</li> <li>• The resolution of the overlay document must be the same as that of the document you will print with the overlay.</li> </ul> </div>
<p data-bbox="50 976 369 1105"><b>Overlay</b> (Creating a new page overlay)</p>	<ol data-bbox="432 976 2032 1328" style="list-style-type: none"> <li><b>a</b> To save the document as an overlay, access <b>Printing Preferences</b>.</li> <li><b>b</b> Click the <b>Advanced</b> tab, and select <b>Edit</b> from the <b>Text</b> drop-down list. <b>Edit Overlay</b> window appears.</li> <li><b>c</b> In the <b>Edit Overlay</b> window, click <b>Create</b>.</li> <li><b>d</b> In the <b>Save As</b> window, type a name up to eight characters in the <b>File name</b> box. Select the destination path, if necessary (The default is C:\Formover).</li> <li><b>e</b> Click <b>Save</b>. The name appears on the <b>Overlay List</b>.</li> <li><b>f</b> Click <b>OK</b> or <b>Print</b> until you exit the <b>Print</b> window. The file is not printed. Instead, it is stored on your computer hard disk drive.</li> </ol>

Item	Description
<b>Overlay</b> (Using a page overlay)	<ul style="list-style-type: none"><li><b>a</b> Click the <b>Advanced</b> tab.</li><li><b>b</b> Select the desired overlay from the <b>Text</b> drop-down list.</li><li><b>c</b> If the overlay file you want does not appear in the <b>Text</b> drop-down list, select <b>Edit...</b> from the list and click <b>Load</b>. Select the overlay file you want to use. If you have stored the overlay file you want to use in an external source, you can also load the file when you access the <b>Open</b> window. After you select the file, click <b>Open</b>. The file appears in the <b>Overlay List</b> box and is available for printing. Select the overlay from the <b>Overlay List</b> box.</li><li><b>d</b> If necessary, check <b>Confirm Page Overlay When Printing</b> box. If this box is checked, a message window appears each time you submit a document for printing, asking you to confirm printing an overlay on your document. If this box is not checked and an overlay has been selected, the overlay automatically prints with your document.</li><li><b>e</b> Click <b>OK</b> or <b>Print</b> until you exit the <b>Print</b> window.</li></ul>
<b>Overlay</b> (Deleting a page overlay)	<ul style="list-style-type: none"><li><b>a</b> In the <b>Printing Preferences</b> window, click the <b>Advanced</b> tab.</li><li><b>b</b> Select <b>Edit</b> in the <b>Text</b> drop down list.</li><li><b>c</b> Select the overlay you want to delete from the <b>Overlay List</b> box.</li><li><b>d</b> Click <b>Delete</b>.</li><li><b>e</b> When a confirming message window appears, click <b>Yes</b>.</li><li><b>f</b> Click <b>OK</b> or <b>Print</b> until you exit the <b>Print</b> window. You can delete page overlays that you no longer use.</li></ul>

Item	Description
<b>Print Mode</b>	 <ul style="list-style-type: none"><li>• This feature is available only if you have installed the optional memory or hard disk.</li><li>• Some menus may not appear on the display depending on options or models. If so, it is not applicable to your machine.</li></ul> <ul style="list-style-type: none"><li>• <b>Print Mode:</b> The default <b>Print Mode</b> is <b>Normal</b>, which is for printing without saving the printing file in the memory.<ul style="list-style-type: none"><li>- <b>Normal:</b> This mode prints without storing your document in the optional memory.</li><li>- <b>Proof:</b> This mode is useful when you print more than one copy. You can print one copy first to check, then print the rest of the copies later.</li><li>- <b>Confidential:</b> This mode is used for printing confidential documents. You need to enter a password to print.</li><li>- <b>Store:</b> Select this setting to save a document in the hard disk without printing.</li><li>- <b>Spool:</b> This option can be useful when handling large amounts of data. If you select this setting, the printer spools the document into the hard disk and then prints it from the hard disk queue, decreasing the computer's work load.</li><li>- <b>Print Schedule:</b> Select this setting to print the document at a specified time.</li></ul></li><li>• <b>User ID:</b> This option is used when you need to find a saved file using the control panel.</li><li>• <b>Job Name:</b> This option is used when you need to find a saved file using the control panel.</li></ul>



## What is Direct Printing Utility?

Direct Printing Utility is a program that sends a PRN, TXT, TIFF, XPS, and PDF files directly to your machine to print without having to opening the file.

To install this program, select **Advanced Installation > Custom Installation** and put a check mark in this program when you install the printer driver.



- HDD should be installed on your machine, to print files using this program.
- You cannot print PDF files that are restricted. Deactivate the printing restriction feature and retry printing.
- You cannot print PDF files that are restricted by a password. Deactivate the password feature, and retry printing.
- Whether or not a PDF file can be printed using the Direct Printing Utility program depends on how the PDF file was created.
- The Direct Printing Utility program supports PDF version 1.7 and below. For higher versions, you must open the file to print it.



## Printing

There are several ways you can print using the Direct Printing Utility.

- 1 From the **Start** menu select **Programs** or **All Programs > Samsung Printers > Direct Printing Utility > Direct Printing Utility**.

Or, double-click the Direct Printing Utility shortcut icon on your desktop.

The Direct Printing Utility window appears.

- 2 Select your machine from the **Select Printer** drop-down list and click **Browse**.
- 3 Select the file you wish to print and click **Open**.  
The file is added in the **Select Files** section.
- 4 Customize the machine settings for your needs.
- 5 Click **Print**. The selected PDF file is sent to the machine.



## Using the shortcut icon

- 1 Select the PDF file you wish to print, and drag-and-drop it to the Direct Printing Utility shortcut icon on your desk top.



If the default machine does not support Direct Printing Utility, the message window alerting you to select the appropriate machine opens. Select the appropriate machine in the **Select Printer** section.

- 2 Customize the machine settings.
- 3 Click **Print**. The selected PDF file is sent to the machine.



## Using the right-click menu

- 1 Right-click on the PDF file to print and select **Direct Printing**. The Direct Printing Utility window appears with the PDF file is added.
- 2 Select the machine to use.
- 3 Customize the machine settings.

- 4 Click **Print**. The selected PDF file is sent to the machine.





Some menus may not appear on the display depending on options or models. If so, it is not applicable to your machine.




## From the printer driver

After installing the optional memory, you can use advanced printing features, such as proofing a job and specifying of printing a private job in the **Print** window. Select **Properties** or **Preference**, and configure the printing mode.




## From the control panel

If your machine has optional memory or an optional hard drive, you can use these features from the  (**Menu**) button > **System Setup** > **Job Management**.

- **Active Job:** All of the print jobs waiting to be printed are listed in the active job queue in the order you sent them to the printer. You can delete a job from the queue before printing, or promote a job to print sooner.
- **File Policy:** You can choose the file policy for generating file name before you proceed with the job through optional memory. If the optional memory already has the same name when you entered a new file name, you can rename or overwrite it.
- **Stored Job:** You can print or delete a stored job.



After installing the hard drive, you can also print the predefined document templates from the  (**Menu**) button > **System Setup** > **Form Menu**.

## Macintosh printing



### Printing a document

When you print with a Macintosh, you need to check the printer driver settings in each application you use. Follow the steps below to print from a Macintosh:

- 1 Open the document to print.
- 2 Open the **File** menu and click **Page Setup (Document Setup)** in some applications).
- 3 Choose your paper size, orientation, scaling, other options, and make sure that your machine is selected. Click **OK**.
- 4 Open the **File** menu and click **Print**.
- 5 Choose the number of copies and indicate which pages to print.
- 6 Click **Print**.



### Changing printer settings

You can use advanced printing features when using your machine.

Open an application and select **Print** from the **File** menu. The machine name, which appears in the printer properties window, may differ depending on the machine in use. Except for the name, the composition of the printer properties window is similar to the following.



### Printing multiple pages on one sheet

You can print more than one page on a single sheet of paper. This feature provides a cost-effective way to print draft copies.

- 1 Open an application, and select **Print** from the **File** menu.
- 2 Select **Layout** from the drop-down list under **Orientation**. In the **Pages per Sheet** drop-down list, select the number of pages you want to print on one sheet of paper.
- 3 Select the other options to use.

## 4 Click **Print**.

The machine prints the selected number of pages to print on one sheet of paper.



### Printing on both sides of the paper

Before printing in the duplex mode, decide on which edge you will be binding your finished document. The binding options are, as follows:

- **Long-Edge Binding:** This option is the conventional layout used in book binding.
- **Short-Edge Binding:** This option is the type often used with calendars.

- 1 From your Macintosh application, select **Print** from the **File** menu.
- 2 Select **Layout** from the drop-down list under **Orientation**.
- 3 Select a binding orientation from the **Two-Sided** option.
- 4 Select the other options to use.
- 5 Click **Print** and the machine prints on both sides of the paper.

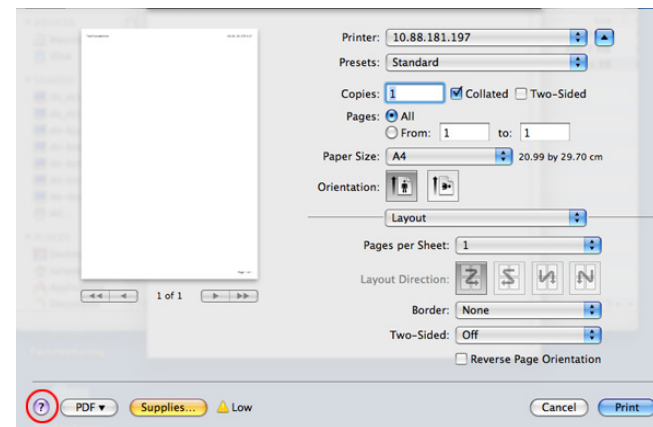


If you print more than 2 copies, the first copy and the second copy might print on the same sheet of paper. Avoid printing on both sides of paper when you are printing more than 1 copy.



### Using help

Click the question mark on the bottom-left corner of the window and click on the topic you want to know about. A pop-up window appears with information about that option's feature, which is provided from the driver.



## Linux printing



### Printing from applications

There are a lot of Linux applications that allow you to print using Common UNIX Printing System (CUPS). You can print on your machine from any such application.

- 1 Open an application, and select **Print** from the **File** menu
- 2 Select **Print** directly using `lpr`.
- 3 In the LPR GUI window, select the model name of your machine from the printer list and click **Properties**.
- 4 Change the print job properties using the following four tabs displayed at the top of the window.
  - **General:** Changes the paper size, the paper type, and the orientation of the documents. It enables the duplex feature, adds start and end banners, and changes the number of pages per sheet.
  - **Text:** Specifies the page margins and set the text options, such as spacing or columns.

- **Graphics:** Sets image options that are used when printing image files, such as color options, image size, or image position.
- **Advanced:** Sets the print resolution, paper source, and destination.

- 5 Click **Apply** to apply the changes and close the **Properties** window.
- 6 Click **OK** in the **LPR GUI** window to start printing.
- 7 The Printing window appears, allowing you to monitor the status of your print job.  
To abort the current job, click **Cancel**.



### Printing files

You can print many different types of files on your machine using the standard CUPS, directly from the command line interface. The CUPS `lpr` utility allows you to do that, but the driver's package replaces the standard `lpr` tool by a much more user-friendly LPR GUI program.

To print any document file:

- 1 Enter `lpr <file_name>` from the Linux shell command line and press Enter. The **LPR GUI** window appears.

When you type only `lpr` and press **Enter**, the **Select file(s) to print** window appears first. Just select any files you want to print and click **Open**.

- 2 In the **LPR GUI** window, select your machine from the list, and change the print job properties.
- 3 Click **OK** to start printing.



### Configuring Printer Properties

Using the **Printer Properties** window provided by the **Printers configuration**, you can change the various properties for your machine as a printer.

- 1 Open the **Unified Driver Configurator**.  
If necessary, switch to **Printers configuration**.
- 2 Select your machine on the available printers list and click **Properties**.

- 3 The **Printer Properties** window appears.

The following five tabs display at the top of the window:

- **General:** Allows you to change the printer location and name. The name entered in this tab displays on the printer list in **Printers configuration**.
- **Connection:** Allows you to view or select another port. If you change the machine port from USB to parallel or vice versa while in use, you must re-configure the machine port in this tab.
- **Driver:** Allows you to view or select another machine driver. By clicking **Options**, you can set the default device options.
- **Jobs:** Shows the list of print jobs. Click **Cancel job** to cancel the selected job and select the **Show completed jobs** check box to see previous jobs on the job list.
- **Classes:** Shows the class that your machine is in. Click **Add to Class** to add your machine to a specific class or click **Remove from Class** to remove the machine from the selected class.

- 4 Click **OK** to apply the changes and close the **Printer Properties** window.

## Unix printing



### Proceeding the print job

After installing the printer, choose any of the image, text, PS or HPGL files to print.

- 1 Execute "**printui <file\_name\_to\_print>**" command.  
For example, if you are printing "**document1**"  
**printui document1**  
This will open the UNIX Printer Driver **Print Job Manager** in which the user can select various print options.
- 2 Select a printer that has been already added.
- 3 Select the printing options from the window such as **Page Selection**.
- 4 Select how many copies are needed in **Number of Copies**.



To take advantage of the printer features provided by your printer driver, press **Properties** (see "Changing printer settings" on page 81).

- 5 Press **OK** to start the print job.



### Changing the machine settings

The UNIX printer driver **Print Job Manager** in which the user can select various print options in printer **Properties**.

The following hot keys may also be used: "H" for **Help**, "O" for **OK**, "A" for **Apply**, and "C" for **Cancel**.

### General tab

- **Paper Size:** Set the paper size as A4, Letter, or other paper sizes, according to your requirements.
- **Paper Type:** Choose the type of the paper. Options available in the list box are **Printer Default**, **Plain**, and **Thick**.
- **Paper Source:** Select from which tray the paper is used. By default, it is **Auto Selection**.

- **Orientation:** Select the direction in which information is printed on a page.
- **Duplex:** Print on both sides of paper to save paper.
- **Multiple pages:** Print several pages on one side of the paper.
- **Page Border:** Choose any of the border styles (e.g., **Single-line hairline**, **Double-line hairline**)

## Image tab

---

In this tab, you can change the brightness, resolution, or image position of your document.

## Text tab

---

Set the character margin, line space, or the columns of the actual print output.

## HPGL/2 tab

---

- **Use only black pen:** To print all graphics in black.
- **Fit plot to page:** Fit the entire graphic into a single page.
- **Pen Width:** Change value to increase the thickness of pen lines. By default, it is 1000.

## Margins tab

---

- **Use Margins:** Set the margins for the document. By default, margins are not enabled. The user can change the margin settings by changing the values in the respective fields. Set by default, these values depend on the page size selected.
- **Unit:** Change the units to points, inches, or centimeters.

## Printer-Specific Settings tab

---

Select various options in the **JCL** and **General** frames to customize various settings. These options are specific to the printer and depend on the PPD file.

## 5. Maintenance

This chapter introduces management tools provided to help you make full use of your machine. It also provides information for maintaining the toner cartridge.

- **Storing the toner cartridge** 88
- **Tips for moving & storing your machine** 90
- **Useful management tools** 91





Toner cartridges contain components that are sensitive to light, temperature and humidity. Samsung suggests users follow these recommendations to ensure optimal performance, highest quality, and longest life from your new Samsung toner cartridge.

Store this cartridge in the same environment in which the printer will be used. This should be in controlled temperature and humidity conditions. The toner cartridge should remain in its original and unopened package until installation – if original packaging is not available, cover the top opening of the cartridge with paper and store in a dark cabinet.

Opening the cartridge package prior to use dramatically shortens its useful shelf and operating life. Do not store on the floor. If the toner cartridge is removed from the printer, follow the instructions below to store the toner cartridge properly.

- Store the cartridge inside the protective bag from the original package.
- Store lying flat (not standing on end) with the same side facing up as if it were installed in the machine.
- Do not store consumables in any of the following conditions:
  - Temperature greater than 40°C (104°F).
  - Humidity range not less than 20% and not greater than 80%.
  - An environment with extreme changes in humidity or temperature.
  - Direct sunlight or room light.

- Dusty places.
- A car for a long period of time.
- An environment where corrosive gases are present.
- An environment with salty air.



## Handling instructions

- Do not touch the surface of the photoconductive drum in the cartridge.
- Do not expose the cartridge to unnecessary vibrations or shock.
- Never manually rotate the drum, especially in the reverse direction; this can cause internal damage and toner spillage.



## Toner cartridge usage

Samsung Electronics does not recommend or approve the use of non-Samsung brand toner cartridges in your printer including generic, store brand, refilled, or remanufactured toner cartridges.



Samsung's printer warranty does not cover damage to the machine caused by the use of a refilled, remanufactured, or non-Samsung brand toner cartridges.



## Estimated cartridge life

Estimated cartridge life (the life of the toner cartridge yield) depends on the amount of toner that print jobs require. The actual print yield may vary depending on the print density of the pages you print on, operating environment, printing interval, media type and/or media size. For example, if you print a lot of graphics, the consumption of the toner is higher and you may need to change the cartridge more often.

# Tips for moving & storing your machine

- When moving the machine, do not tilt or turn it upside down. Otherwise, the inside of the machine may be contaminated by toner, which can cause damage to the machine or reduce print quality.
- When moving the machine, make sure at least two people are holding the machine securely.



## Samsung AnyWeb Print

This tool helps you screen-capture, preview, scrap, and print Windows Internet Explorer pages more easily, than when you use an ordinary program. Click **Start > All programs > Samsung Printers > Samsung AnyWeb Print > Download the latest version** to link to the website where the tool is available for download.



## Using SyncThru™ Web Service



- Internet Explorer 6.0 or higher is the minimum requirement for SyncThru™ Web Service.
- SyncThru™ Web Service explanation in this user's guide may differ from your machine depending on its options or models.
- Network model only.

## Accessing SyncThru™ Web Service

- 1 Access a web browser, such as Internet Explorer, from Windows.  
  
Enter the machine IP address of your printer (http://xxx.xxx.xxx.xxx) in the address field and press the Enter key or click **Go**.
- 2 Your machine's embedded website opens.

### ► Logging into SyncThru™ Web Service

Before configuring options in SyncThru™ Web Service, you need to log-in as an administrator. You can still use SyncThru™ Web Service without logging in but you won't have access to **Settings** tab and **Security** tab.

- 1 Click **Login** on the upper right of the SyncThru™ Web Service website.
- 2 Type in the **ID** and **Password** then click **Login**.
  - **ID: admin**
  - **Password: sec00000**

## SyncThru™ Web Service overview



Some tabs may not appear depending on your model.

### ► Information tab

This tab gives you general information about your machine. You can check things, such as remaining amount of toner. You can also print reports, such as an error report.

- **Active Alerts:** Shows the alerts that have occurred in the machine and their severity.
- **Supplies:** Shows how many pages are printed and amount of toner left in the cartridge.
- **Usage Counters:** Shows the usage count by print types: simplex and duplex.
- **Current Settings:** Shows the machine's and network's information.
- **Print information:** Prints reports such as system related reports, e-mail address, and font reports.

### ► Settings tab

This tab allows you to set configurations provided by your machine and network. You need to log-in as an administrator to view this tab.

- **Machine Settings** tab: Sets options provided by your machine.
- **Network Settings** tab: Shows options for the network environment. Sets options such as TCP/IP and network protocols.

### ► Security tab

This tab allows you to set system and network security information. You need to log-in as an administrator to view this tab.

- **System Security:** Sets the system administrator's information and also enables or disables machine features.
- **Network Security:** Sets settings for HTTPs, IPSec, IPv4/IPv6 filtering, 802.1x, and Authentication servers.

### ► Maintenance tab

This tab allows you to maintain your machine by upgrading firmware and setting contact information for sending emails. You can also connect to Samsung website or download drivers by selecting the **Link** menu.

- **Firmware Upgrade:** Upgrade your machine's firmware.
- **Contact Information:** Shows the contact information.

- **Link:** Shows links to useful sites where you can download or check information.

## E-mail notification setup

You can receive emails about your machine's status by setting this option. By setting information such as IP address, host name, e-mail address and SMTP server information, the machine status (toner cartridge shortage or machine error) will be sent to a certain person's e-mail automatically. This option may be used more frequently by a machine administrator.

- 1 Start a web browser, such as Internet Explorer, from Windows. Enter the machine IP address (http://xxx.xxx.xxx.xxx) in the address field and press the Enter key or click **Go**.
- 2 Your machine's embedded website opens.
- 3 From the **Settings** tab, select **Machine Settings > E-mail Notification**.



If you have not configured outgoing server environment, go to **Settings > Network Settings > Outgoing Mail Server(SMTP)** to configure network environment before setting e-mail notification.

- 4 Select **Enable** check box to use the **E-mail Notification**.
- 5 Click **Add** button to add e-mail notification user. Set the recipient name and e-mail address(es) with notification items you want to receive an alert for.
- 6 Click **Apply**.



If the firewall is activated, the e-mail may not be sent successfully. In that case, contact the a network administrator.

## Setting the system administrator's information


This setting is necessary for using the e-mail notification option.

- 1 Start a web browser, such as Internet Explorer, from Windows. Enter the machine IP address (http://xxx.xxx.xxx.xxx) in the address field and press the Enter key or click **Go**.
- 2 Your machine's embedded website opens.
- 3 From the **Security** tab, select **System Security > System Administrator**

- 4 Enter the name of the administrator, phone number, location, and email address.
- 5 Click **Apply**.

## Using Samsung Easy Printer Manager (Windows only)

Samsung Easy Printer Manager is a Windows-based application that combines Samsung machine settings into one location. Samsung Easy Printer Manager combines device settings as well as printing environments, settings/actions and launching. All of these features provide a gateway to conveniently use your Samsung machine. Samsung Easy Printer Manager provides two different user interfaces for the user to choose from: the basic user interface and the advanced user interface. Switching between the two interfaces is easy: just click a button.

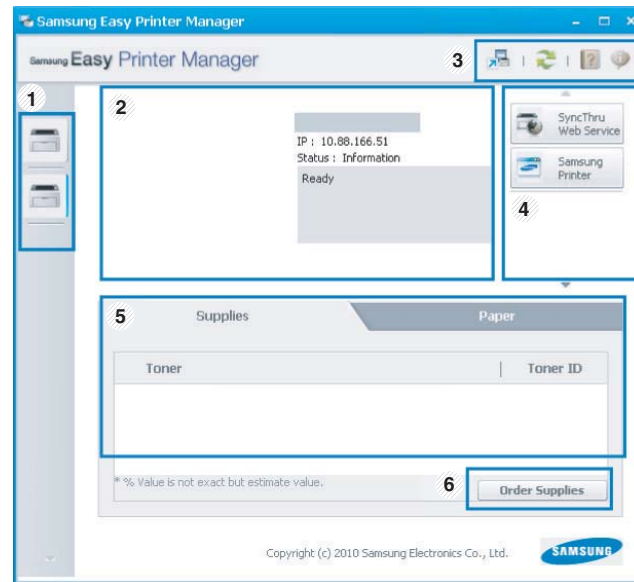
 Internet Explorer 6.0 or higher is the minimum requirement for Samsung Easy Printer Manager.

## Understanding Samsung Easy Printer Manager




To open the program:

Select **Start > Programs** or **All Programs > Samsung Printers > Samsung Easy Printer Manager > Samsung Easy Printer Manager**.


The Samsung Easy Printer Manager interface is comprised of various basic sections as described in the table that follows:



1	<b>Printer List</b>	The printer list displays the installed printer icons on your computer.
---	---------------------	---

2	<b>Printer Information</b>	<p>This area gives you general information about your machine. You can check information, such as the machine’s model name, IP address (or Port name), and machine status.</p> <div data-bbox="323 474 1022 766" style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;">  <p><b>User’s Guide button:</b> This button opens <b>Troubleshooting Guide</b> when an error occurs. You can directly open the necessary section in the user’s guide.</p> </div>
3	<b>Application information</b>	<p>Includes links for changing to the advanced settings, preference, help, and about.</p> <div data-bbox="323 922 1022 1140" style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;">  <p>The  button is used to change the user interface to the advanced settings user interface.</p> </div>
4	<b>Quick links</b>	<p>Displays <b>Quick links</b> to machine specific functions. This section also includes links to applications in the advanced settings.</p>
5	<b>Contents Area</b>	<p>Displays information about the selected machine, remaining toner level, and paper. The information will vary based on the machine selected. Some machines do not have this feature.</p>

6	<b>Order Supplies</b>	<p>Click on the <b>Order</b> button from the supply ordering window. You can order replacement toner cartridge(s) from online.</p>
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Click the **Help** (?) button from the upper-right corner of the window and click on any option you want to know about.

## Advanced settings user interface overview

The advanced user interface is intended to be used by the person responsible for managing the network and machines.

### ► Device Settings

You can configure various machine settings such as machine setup, paper, layout, emulation, network, and print information.

### ► Alert Settings

This is menu includes settings related to error alerting.

- **Printer Alert:** Provides settings related to when alerts will be received.
- **Email Alert:** Provides options relating to receiving alerts via email.
- **History Alert:** Provides a history of device and toner related alerts.



## ► Job Accounting

Provides querying of quota information of the specified job accounting user. This quota information can be created and applied to devices by job accounting software such as SyncThru™ or CounThru™ admin software.

## Using Samsung Printer Status (Windows only)

The Samsung Printer Status is a program that monitors and informs you of the machine status.



- The Samsung Printer Status window and its contents shown in this user’s guide may differ depending on the machine or operating system in use.
- Check the operating system(s) that are compatible with your machine (see Basic guide).

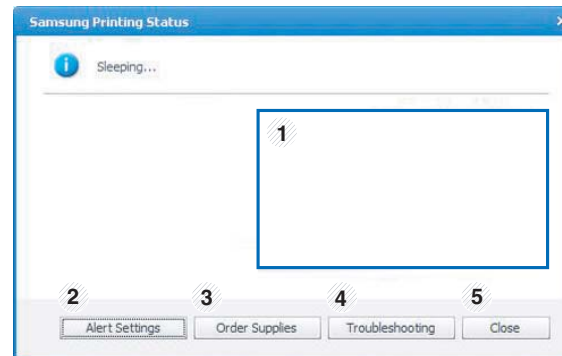
## Samsung Printer Status overview

If an error occurs while operating, you can check the error from the Samsung Printer Status. Samsung Printer Status is installed automatically when you install the machine software.

You can also launch Samsung Printer Status manually. Go to the **Printing Preferences**, click the **Basic** tab > **Printer Status** button.

These icons appear on the Windows task bar:

Icon	Mean	Description
	Normal	The machine is in ready mode and experiencing no errors or warnings.
	Warning	The machine is in a state where an error might occur in the future. For example, it might be in toner low status, which may lead to toner empty status.
	Error	The machine has at least one error.



	Toner Level	
1		You can view the level of toner remaining in each toner cartridge. The machine and the number of toner cartridge(s) shown in the above window may differ depending on the machine in use. Some machines do not have this feature.

2	<b>Alert Settings</b>	Select the settings you want from the options window.
3	<b>Order Supplies</b>	You can order replacement toner cartridge(s) from online.
4	<b>Troubleshooting</b>	You can directly open the troubleshooting section in the user's guide.
5	<b>Close</b>	Close the window.

## Using Smart Panel (Macintosh and Linux only)



Smart Panel is a program that monitors and informs you of the machine's status, and allows you to customize the machine's settings. For Macintosh, Smart Panel is installed automatically when you install the machine software. For Linux, you can download Smart Panel from the Samsung website (see "Installing the Smart Panel" on page 8).



- The Smart Panel window and its contents shown in this user's guide may differ depending on the machine or operating system in use.
- Check the operating system(s) that are compatible with your machine (see Basic Guide).



## Smart Panel overview

If an error occurs while operating, you can check the error from the Smart Panel. You can also launch Smart Panel manually.

Macintosh		Click this icon the Smart Panel icon on the menu bar.
Linux		Double-click the Smart Panel icon in the Notification Area.



1	<b>Toner Level</b>	You can view the level of toner remaining in each toner cartridge. The machine and the number of toner cartridge(s) shown in the above window may differ depending on the machine in use. Some machines do not have this feature.
2	<b>Buy Now</b>	You can order replacement toner cartridge(s) from online.

3	<b>User's Guide</b>	You can view the online User's Guide.   This button opens the <b>Troubleshooting Guide</b> when an error occurs. You can directly open the troubleshooting section in the user's guide.
4	<b>Printer Setting</b>	You can configure various machine settings in the Printer Settings Utility window. Some machines do not have this feature.   If you connect your machine to a network, the SyncThru™ Web Service window appears instead of the Printer Settings Utility.

## Changing Smart Panel 's settings

Right-click in Linux or in Mac OS X click on the Smart Panel icon and select **Options**. Select the settings you want from the **Options** window.



## Using the Linux Unified Driver Configurator

The Unified Driver Configurator is a tool primarily intended for configuring machine devices. You need to install Unified Linux Driver to use Unified Driver Configurator (see "Installation for Linux" on page 8).

After the driver is installed on your Linux system, the Unified Driver Configurator icon will automatically be created on your desktop.

## Opening Unified Driver Configurator

- 1 Double-click the **Unified Driver Configurator** on the desktop.  
You can also click the **Startup** Menu icon and select **Samsung Unified Driver > Unified Driver Configurator**.
- 2 Click each button on the left to switch to the corresponding configuration window.



- 1 Printer Configuration
- 2 Port Configuration



To use the on screen help, click **Help**.

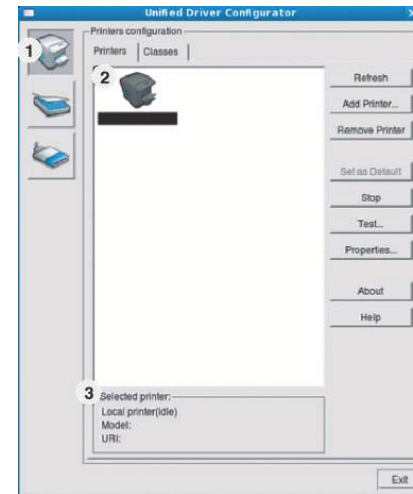
- 3 After changing the configurations, click **Exit** to close the **Unified Driver Configurator**.

## Printers configuration

**Printers configuration** has the two tabs: **Printers** and **Classes**.

### ► Printers tab

View the current system's printer configuration by clicking on the machine icon button on the left side of the **Unified Driver Configurator** window.



- 1 Switches to **Printers configuration**.
- 2 Shows all of the installed machines.
- 3 Shows the status, model name, and URI of your machine.

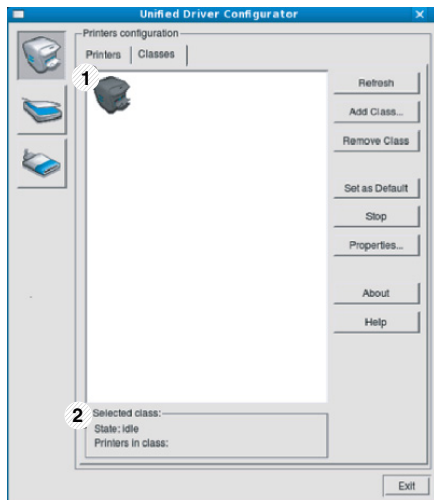
The printer control buttons are, as follows:

- **Refresh:** Renews the available machines list.
- **Add Printer:** Allows you to add a new machines.
- **Remove Printer:** Removes the selected machine.

- **Set as Default:** Sets the current selected machine as a default machine.
- **Stop/Start:** Stops/starts the machine.
- **Test:** Allows you to print a test page to ensure the machine is working properly.
- **Properties:** Allows you to view and change the printer's properties.

## ► Classes tab

The Classes tab shows a list of available machine classes.

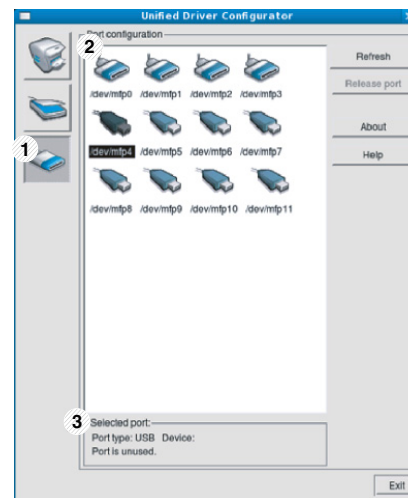


1	Shows all of the machine classes.
2	Shows the status of the class and the number of machines in the class.

- **Refresh:** Renews the classes list.
- **Add Class:** Allows you to add a new machine class.
- **Remove Class:** Removes the selected machine class.

## Ports configuration

In this window, you can view the list of available ports, check the status of each port and release a port that is stalled in a busy state when its owner has terminated the job for any reason.



1	Switches to <b>Ports configuration</b> .
2	Shows all of the available ports.
3	Shows the port type, device connected to the port, and status.

- **Refresh:** Renews the available ports list.
- **Release port:** Releases the selected port.

## 6. Troubleshooting

This chapter gives helpful information for what to do if you encounter an error.

- **Paper feeding problems** 103
- **Power and cable connecting problems** 104
- **Printing problems** 105
- **Printing quality problems** 109
- **Operating system problems** 117




Condition	Suggested solutions
<b>Paper jams during printing.</b>	Clear the paper jam.
<b>Paper sticks together.</b>	<ul style="list-style-type: none"><li>• Check the maximum paper capacity of the tray .</li><li>• Make sure that you are using the correct type of paper.</li><li>• Remove paper from the tray and flex or fan the paper.</li><li>• Humid conditions may cause some paper to stick together.</li></ul>
<b>Multiple sheets of paper do not feed.</b>	Different types of paper may be stacked in the tray. Load paper of only one type, size, and weight.
<b>Paper does not feed into the machine.</b>	<ul style="list-style-type: none"><li>• Remove any obstructions from inside the machine.</li><li>• Paper has not been loaded correctly. Remove paper from the tray and reload it correctly.</li><li>• There is too much paper in the tray. Remove excess paper from the tray.</li><li>• The paper is too thick. Use only paper that meets the specifications required by the machine.</li></ul>
<b>The paper keeps jamming.</b>	<ul style="list-style-type: none"><li>• There is too much paper in the tray. Remove excess paper from the tray. If you are printing on special materials, use the multi-purpose tray (or manual feeder).</li><li>• An incorrect type of paper is being used. Use only paper that meets the specifications required by the machine.</li><li>• There may be debris inside the machine. Open the front cover and remove any debris.</li></ul>
<b>Transparencies stick together in the paper exit.</b>	Use only transparencies specifically designed for laser printers. Remove each transparency as it exits from the machine.
<b>Envelopes skew or fail to feed correctly.</b>	Ensure that the paper guides are against both sides of the envelopes.






Click this link to open an animation about solving power problems.

Condition	Suggested solutions
<b>The machine is not receiving power, or the connection cable between the computer and the machine is not connected properly.</b>	<ul style="list-style-type: none"><li>• Connect the machine to the electricity supply first and press the  (<b>Power</b>) button on the control panel.</li><li>• Disconnect the machine's cable and reconnect it.</li></ul>

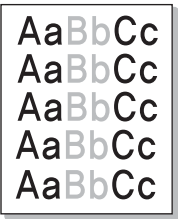
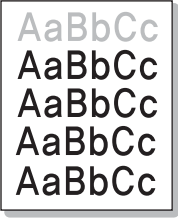
Condition	Possible cause	Suggested solutions
<p><b>The machine does not print.</b></p>	<p>The machine is not receiving power.</p>	<p>Check the power cord connections. Check the power switch and the power source.</p>
	<p>The machine is not selected as the default machine.</p>	<p>Select your machine as your default machine in Windows.</p>
	<p>Check the machine for the following:</p> <ul style="list-style-type: none"> <li>• The front cover is not closed. Close the front cover.</li> <li>• Paper is jammed. Clear the paper jam.</li> <li>• No paper is loaded. Load paper.</li> <li>• The toner cartridge is not installed. Install the toner cartridge.</li> </ul> <p>If a system error occurs, contact your service representative.</p>	
	<p>The connection cable between the computer and the machine is not connected properly.</p>	<p>Disconnect the machine cable and reconnect it.</p>
	<p>The connection cable between the computer and the machine is defective.</p>	<p>If possible, attach the cable to another computer that is working properly and print a job. You can also try using a different machine cable.</p>
	<p>The port setting is incorrect.</p>	<p>Check the Windows printer settings to make sure that the print job is sent to the correct port. If the computer has more than one port, make sure that the machine is attached to the correct one.</p>
	<p>The machine may be configured incorrectly.</p>	<p>Check the <b>Printing Preferences</b> to ensure that all of the print settings are correct.</p>

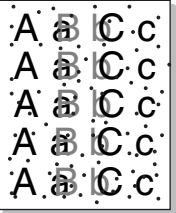
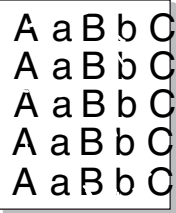
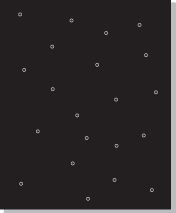
Condition	Possible cause	Suggested solutions
<b>The machine does not print.</b>	The printer driver may be incorrectly installed.	Uninstall and reinstall the machine's driver.
	The machine is malfunctioning.	Check the display message on the control panel to see if the machine is indicating a system error. Contact a service representative.
	The document size is so big that the hard disk space of the computer is insufficient to access the print job.	Get more hard disk space and print the document again.
	The output tray is full.	Once the paper is removed from the output tray, the machine resumes printing.
<b>The machine selects print materials from the wrong paper source.</b>	The paper option that was selected in the <b>Printing Preferences</b> may be incorrect.	For many software applications, the paper source selection is found under the <b>Paper</b> tab within the <b>Printing Preferences</b> . Select the correct paper source. See the printer driver help screen.
<b>A print job is extremely slow.</b>	The job may be very complex.	Reduce the complexity of the page or try adjusting the print quality settings.
<b>Half the page is blank.</b>	The page orientation setting may be incorrect.	Change the page orientation in your application. See the printer driver help screen.
	The paper size and the paper size settings do not match.	Ensure that the paper size in the printer driver settings matches the paper in the tray.  Or, ensure that the paper size in the printer driver settings matches the paper selection in the software application settings you use.

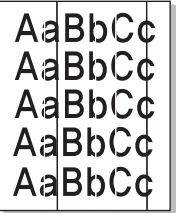
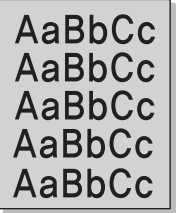
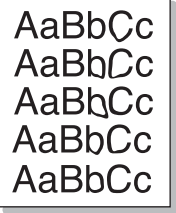
Condition	Possible cause	Suggested solutions
<b>The machine prints, but the text is wrong, garbled, or incomplete.</b>	The machine cable is loose or defective.	Disconnect the machine cable and reconnect. Try a print job that you have already printed successfully. If possible, attach the cable and the machine to another computer that you know works and try a print job. Finally, try a new machine cable.
	The wrong printer driver was selected.	Check the application's printer selection menu to ensure that your machine is selected.
	The software application is malfunctioning.	Try printing a job from another application.
	The operating system is malfunctioning.	Exit Windows and reboot the computer. Turn the machine off and back on again.
	If you are in a DOS environment, the font setting for your machine may be set incorrectly.	See "Changing the font setting" on page 68.
<b>Pages print, but they are blank.</b>	The toner cartridge is defective or out of toner.	Redistribute the toner, if necessary. If necessary, replace the toner cartridge.
	The file may have blank pages.	Check the file to ensure that it does not contain blank pages.
	Some parts, such as the controller or the board, may be defective.	Contact a service representative.

Condition	Possible cause	Suggested solutions
<p><b>The machine does not print PDF files correctly. Some parts of graphics, text, or illustrations are missing.</b></p>	<p>Incompatibility between the PDF file and the Acrobat products.</p>	<p>Printing the PDF file as an image may enable the file to print. Turn on <b>Print As Image</b> from the Acrobat printing options.</p> <div data-bbox="1016 451 2053 604" style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;">  <p>It will take longer to print when you print a PDF file as an image.</p> </div>
<p><b>The print quality of photos is not good. Images are not clear.</b></p>	<p>The resolution of the photo is very low.</p>	<p>Reduce the photo size. If you increase the photo size in the software application, the resolution will be reduced.</p>
<p><b>Before printing, the machine emits vapor near the output tray.</b></p>	<p>Using damp paper can cause vapor during printing.</p>	<p>This is not a problem. Just keep printing.</p>
<p><b>The machine does not print special-sized paper, such as billing paper.</b></p>	<p>Paper size and paper size setting do not match.</p>	<p>Set the correct paper size in the <b>Custom</b> in <b>Paper</b> tab in <b>Printing Preferences</b>.</p>
<p><b>The printed billing paper is curled.</b></p>	<p>The paper type setting does not match.</p>	<p>Change the printer option and try again. Go to <b>Printing Preferences</b>, click <b>Paper</b> tab, and set type to <b>Thick</b>.</p>

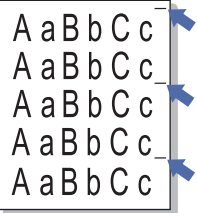
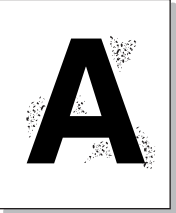
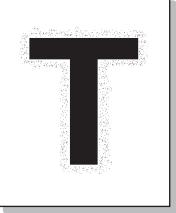
If the inside of the machine is dirty or paper has been loaded improperly, there might be a reduction in print quality. See the table below to clear the problem.

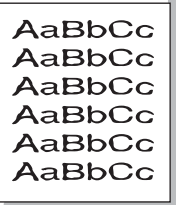
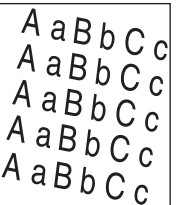
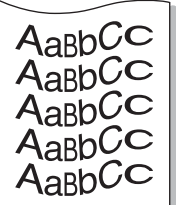
Condition	Suggested Solutions
<p><b>Light or faded print</b></p> 	<ul style="list-style-type: none"><li>• If a vertical white streak or faded area appears on the page, the toner supply is low. Install a new toner cartridge.</li><li>• The paper may not meet paper specifications; for example, the paper may be too moist or rough.</li><li>• If the entire page is light, the print resolution setting is too low or the toner save mode is on. Adjust the print resolution and turn the toner save mode off. See the help screen of the printer driver.</li><li>• A combination of faded or smeared defects may indicate that the toner cartridge needs cleaning. Clean the inside of your machine.</li><li>• The surface of the LSU part inside the machine may be dirty. Clean the inside of your machine. If these steps do not correct the problem, contact a service representative.</li></ul>
<p><b>The top half of the paper is printed lighter than the rest of the paper</b></p> 	<p>The toner might not adhere properly to this type of paper.</p> <ul style="list-style-type: none"><li>• Change the printer option and try again. Go to <b>Printing Preferences</b> , click the <b>Paper</b> tab, and set the paper type to <b>Recycled</b>.</li></ul>

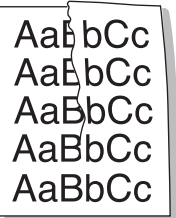
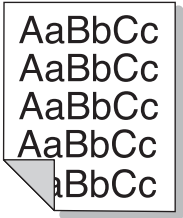
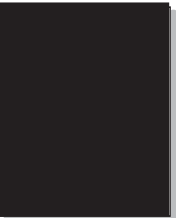
Condition	Suggested Solutions
<p><b>Toner specks</b></p> 	<ul style="list-style-type: none"><li>• The paper may not meet specifications; for example, the paper may be too moist or rough.</li><li>• The transfer roller may be dirty. Clean the inside of your machine.</li><li>• The paper path may need cleaning. Contact a service representative.</li></ul>
<p><b>Dropouts</b></p> 	<p>If faded areas, generally rounded, occur randomly on the page:</p> <ul style="list-style-type: none"><li>• A single sheet of paper may be defective. Try reprinting the job.</li><li>• The moisture content of the paper is uneven or the paper has moist spots on its surface. Try a different brand of paper.</li><li>• The paper lot is bad. The manufacturing processes can cause some areas to reject toner. Try a different kind or brand of paper.</li><li>• Change the printer option and try again. Go to <b>Printing Preferences</b>, click the <b>Paper</b> tab, and set type to <b>Thick</b> or <b>Thicker</b> (see Basic Guide for paper weights for each sheet).</li></ul> <p>If these steps do not correct the problem, contact a service representative.</p>
<p><b>White Spots</b></p> 	<p>If white spots appear on the page:</p> <ul style="list-style-type: none"><li>• The paper is too rough and a lot of dirt from paper falls to the inner components within the machine, so the transfer roller may be dirty. Clean the inside of your machine.</li><li>• The paper path may need cleaning. Clean the inside of your machine.</li></ul> <p>If these steps do not correct the problem, contact a service representative.</p>

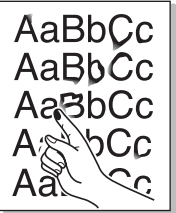

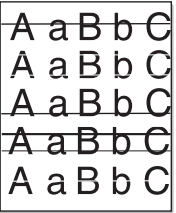
Condition	Suggested Solutions
<b>Vertical lines</b> 	<p>If black vertical streaks appear on the page:</p> <ul style="list-style-type: none"><li>• The surface (drum part) of the toner cartridge inside the machine has probably been scratched. Remove the toner cartridge and install a new one.</li></ul> <p>If white vertical streaks appear on the page:</p> <ul style="list-style-type: none"><li>• The surface of the LSU part inside the machine may be dirty. Clean the inside of your machine. If these steps do not correct the problem, contact a service representative.</li></ul>
<b>Black background</b> 	<p>If the amount of background shading becomes unacceptable:</p> <ul style="list-style-type: none"><li>• Change to a lighter weight paper.</li><li>• Check the environmental conditions: very dry conditions or a high level of humidity (higher than 80% RH) can increase the amount of background shading.</li><li>• Remove the old toner cartridge and install a new one.</li></ul>
<b>Toner smear</b> 	<ul style="list-style-type: none"><li>• Clean the inside of the machine.</li><li>• Check the paper type and quality.</li><li>• Remove the toner cartridge and install a new one.</li></ul>

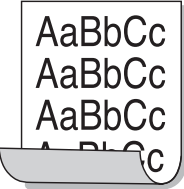


Condition	Suggested Solutions
<p><b>Vertical repetitive defects</b></p> 	<p>If marks repeatedly appear on the printed side of the page at even intervals:</p> <ul style="list-style-type: none"><li>• The toner cartridge may be damaged. If you still have the same problem, remove the toner cartridge and, install a new one.</li><li>• Parts of the machine may have toner on them. If the defects occur on the back of the page, the problem will likely correct itself after a few more pages.</li><li>• The fusing assembly may be damaged. Contact a service representative.</li></ul>
<p><b>Background scatter</b></p> 	<p>Background scatter results from bits of toner randomly distributed on the printed page.</p> <ul style="list-style-type: none"><li>• The paper may be too damp. Try printing with a different batch of paper. Do not open packages of paper until necessary so that the paper does not absorb too much moisture.</li><li>• If background scatter occurs on an envelope, change the printing layout to avoid printing over areas that have overlapping seams on the reverse side. Printing on seams can cause problems.</li><li>• If background scatter covers the entire surface area of a printed page, adjust the print resolution through your software application or in <b>Printing Preferences</b>. Ensure the correct paper type is selected. For example: If <b>Thicker Paper</b> is selected, but <b>Plain Paper</b> actually used, an overcharging can occur causing this copy quality problem.</li></ul>
<p><b>Toner particles are around bold characters or pictures</b></p> 	<p>The toner might not adhere properly to this type of paper.</p> <ul style="list-style-type: none"><li>• Change the printer option and try again. Go to <b>Printing Preferences</b>, click the <b>Paper</b> tab, and set the paper type to <b>Recycled</b>. Ensure the correct paper type is selected. For example: If <b>Thicker Paper</b> is selected, but <b>Plain Paper</b> actually used, an overcharging can occur causing this copy quality problem.</li></ul>

Condition	Suggested Solutions
<p><b>Misformed characters</b></p> 	<ul style="list-style-type: none"><li>• If characters are improperly formed and producing hollow images, the paper stock may be too slick. Try different paper.</li></ul>
<p><b>Page skew</b></p> 	<ul style="list-style-type: none"><li>• Ensure that the paper is loaded properly.</li><li>• Check the paper type and quality.</li><li>• Ensure that the guides are not too tight or too loose against the paper stack.</li></ul>
<p><b>Curl or wave</b></p> 	<ul style="list-style-type: none"><li>• Ensure that the paper is loaded properly.</li><li>• Check the paper type and quality. Both high temperature and humidity can cause paper curl.</li><li>• Turn the stack of paper over in the tray. Also try rotating the paper 180° in the tray.</li></ul>

Condition	Suggested Solutions
<b>Wrinkles or creases</b> 	<ul style="list-style-type: none"><li>• Ensure that the paper is loaded properly.</li><li>• Check the paper type and quality.</li><li>• Turn the stack of paper over in the tray. Also try rotating the paper 180° in the tray.</li></ul>
<b>Back of printouts are dirty</b> 	<ul style="list-style-type: none"><li>• Check for leaking toner. Clean the inside of the machine.</li></ul>
<b>Solid color or black pages</b> 	<ul style="list-style-type: none"><li>• The toner cartridge may not be installed properly. Remove the cartridge and reinsert it.</li><li>• The toner cartridge may be defective. Remove the toner cartridge and install a new one.</li><li>• The machine may require repairing. Contact a service representative.</li></ul>

Condition	Suggested Solutions
<p><b>Loose toner</b></p> 	<ul style="list-style-type: none"> <li>• Clean the inside of the machine.</li> <li>• Check the paper type and quality.</li> <li>• Remove the toner cartridge and then, install a new one.</li> </ul> <p>If the problem persists, the machine may require repair. Contact a service representative.</p>
<p><b>Character voids</b></p> 	<p>Character voids are white areas within parts of characters that should be solid black:</p> <ul style="list-style-type: none"> <li>• If you are using transparencies, try another type of transparency. Because of the composition of transparencies, some character voids are normal.</li> <li>• You may be printing on the wrong surface of the paper. Remove the paper and turn it around.</li> <li>• The paper may not meet paper specifications.</li> </ul>
<p><b>Horizontal stripes</b></p> 	<p>If horizontally aligned black streaks or smears appear:</p> <ul style="list-style-type: none"> <li>• The toner cartridge may be installed improperly. Remove the cartridge and reinsert it.</li> <li>• The toner cartridge may be defective. Remove the toner cartridge and install a new one.</li> </ul> <p>If the problem persists, the machine may require repairing. Contact a service representative.</p>

Condition	Suggested Solutions
<p><b>Curl</b></p> 	<p>If the printed paper is curled or paper does not feed into the machine:</p> <ul style="list-style-type: none"><li>• Turn the stack of paper over in the tray. Also try rotating the paper 180° in the tray.</li><li>• Change the printer's paper option and try again. Go to <b>Printing Preferences</b>, click the <b>Paper</b> tab, and set type to <b>Thin</b>.</li></ul>
<ul style="list-style-type: none"><li>• <b>An unknown image repetitively appears on a few sheets</b></li><li>• <b>Loose toner</b></li><li>• <b>Light print or contamination occurs</b></li></ul>	<p>Your machine is probably being used at an altitude of 1,000 m (3,281 ft) or above. The high altitude may affect the print quality, such as loose toner or light imaging. Change the altitude setting for your machine (See "Altitude adjustment" on page 67).</p>



## Common Windows problems


Condition	Suggested solutions
<b>“File in Use” message appears during installation.</b>	Exit all software applications. Remove all software from the startup group, then restart Windows. Reinstall the printer driver.
<b>“General Protection Fault”, “Exception OE”, “Spool 32”, or “Illegal Operation” messages appear.</b>	Close all other applications, reboot Windows and try printing again.
<b>“Fail To Print”, “A printer timeout error occurred” message appear.</b>	These messages may appear during printing. Just keep waiting until the machine finishes printing. If the message appears in ready mode or after printing has completed, check the connection and/or whether an error has occurred.



Refer to the Microsoft Windows 2000/XP/2003/Vista User's Guide that came with your computer for further information on Windows error messages.



## Common Macintosh problems

Condition	Suggested solutions
<b>The machine does not print PDF files correctly. Some parts of graphics, text, or illustrations are missing.</b>	<p>Printing the PDF file as an image may enable the file to print. Turn on <b>Print As Image</b> from the Acrobat printing options.</p> <div> It will take longer to print when you print a PDF file as an image.</div>
<b>The document has printed, but the print job has not disappeared from the spooler in Mac OS X10.3.2.</b>	<p>Update your MAC OS to MAC OS X 10.3.3 or higher.</p>
<b>Some letters are not displayed normally during cover page printing.</b>	<p>Mac OS cannot create the font while printing the cover page. The English alphabet and numbers are displayed normally on the cover page.</p>
<b>When printing a document in Macintosh with Acrobat Reader 6.0 or higher, colors print incorrectly.</b>	<p>Make sure that the resolution setting in your machine driver matches the one in Acrobat Reader.</p>



Refer to the Macintosh User's Guide that came with your computer for further information on Macintosh error messages.



## Common Linux problems

Condition	Suggested solutions
<b>The machine does not print.</b>	<ul style="list-style-type: none"><li>• Check if the printer driver is installed in your system. Open Unified Driver Configurator and switch to the <b>Printers</b> tab in the <b>Printers configuration</b> window to look at the list of available machines. Make sure that your machine is displayed on the list. If not, open <b>Add new printer wizard</b> to set up your device.</li><li>• Check if the machine is started. Open <b>Printers configuration</b> and select your machine from the printers list. Look at the description in the <b>Selected printer</b> pane. If its status contains <b>Stopped</b>, press the <b>Start</b> button. Normal operation of the machine should be restored. The “stopped” status might be activated when some problems in printing occur.</li><li>• Check if your application has special print options such as “-oraw”. If “-oraw” is specified in the command line parameter, then remove it to print properly. For Gimp front-end, select “print” -&gt; “Setup printer” and edit the command line parameter in the command item.</li></ul>
<b>The machine does not print whole pages, and output is printed on half the page.</b>	<p>It is a known problem that occurs when a color machine is used on version 8.51 or earlier of Ghostscript, 64-bit Linux OS, and has been reported to bugs.ghostscript.com as Ghostscript Bug 688252. The problem is solved in AFPL Ghostscript v. 8.52 or above. Download the latest version of AFPL Ghostscript from <a href="http://sourceforge.net/projects/ghostscript/">http://sourceforge.net/projects/ghostscript/</a> and install it to solve this problem.</p>
<b>“Cannot open port device file” error message appears when printing a document.</b>	<p>Avoid changing print job parameters (e.g., via LPR GUI) while a print job is in progress. Known versions of CUPS server break the print job whenever print options are changed and then try to restart the job from the beginning. Since Unified Linux Driver locks the port while printing, the abrupt termination of the driver keeps the port locked and unavailable for subsequent print jobs. If this situation occurs, try to release the port by selecting <b>Release port</b> in the <b>Port configuration</b> window.</p>





Refer to the Linux User's Guide that came with your computer for further information on Linux error messages.



## Common PostScript problems

The following situations are PS language specific and may occur when several printer languages are used.

Problem	Possible cause	Solution
<b>The PostScript file cannot be printed.</b>	The PostScript driver may not be installed correctly.	<ul style="list-style-type: none"><li>• Install the PostScript driver (see "Software installation" on page 4).</li><li>• Print a configuration page and verify that the PS version is available for printing.</li><li>• If the problem persists, contact a service representative.</li></ul>
<b>Limit Check Error report prints.</b>	The print job was too complex.	You might need to reduce the complexity of the page or install more memory.
<b>A PostScript error page prints.</b>	The print job may not be PostScript.	Make sure that the print job is a PostScript job. Check to see whether the software application expected a setup or PostScript header file to be sent to the machine.
<b>The optional tray is not selected in the driver.</b>	The printer driver has not been configured to recognize the optional tray.	Open the PostScript driver properties, select the <b>Device Options</b> tab, and set the tray option.

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The following glossary helps you get familiar with the product by understanding the terminologies commonly used with printing as well as mentioned in this user's guide.

## 802.11

---

802.11 is a set of standards for wireless local area network (WLAN) communication, developed by the IEEE LAN/MAN Standards Committee (IEEE 802).

## 802.11b/g/n

---

802.11b/g/n can share same hardware and use the 2.4 GHz band. 802.11b supports bandwidth up to 11 Mbps, 802.11n supports bandwidth up to 150 Mbps. 802.11b/g/n devices may occasionally suffer interference from microwave ovens, cordless telephones, and Bluetooth devices.

## Access point

---

Access Point or Wireless Access Point (AP or WAP) is a device that connects wireless communication devices together on wireless local area networks (WLAN), and acts as a central transmitter and receiver of WLAN radio signals.

## ADF

---

An Automatic Document Feeder (ADF) is a scanning unit that will automatically feed an original sheet of paper so that the machine can scan some amount of the paper at once.

## AppleTalk

---

AppleTalk is a proprietary suite of protocols developed by Apple, Inc for computer networking. It was included in the original Macintosh (1984) and is now deprecated by Apple in favor of TCP/IP networking.

## BIT Depth

---

A computer graphics term describing the number of bits used to represent the color of a single pixel in a bitmapped image. Higher color depth gives a broader range of distinct colors. As the number of bits increases, the number of possible colors becomes impractically large for a color map. 1-bit color is commonly called as monochrome or black and white.

## BMP

---

A bitmapped graphics format used internally by the Microsoft Windows graphics subsystem (GDI), and used commonly as a simple graphics file format on that platform.

## BOOTP

---

Bootstrap Protocol. A network protocol used by a network client to obtain its IP address automatically. This is usually done in the bootstrap process of computers or operating systems running on them. The BOOTP servers assign the IP address from a pool of addresses to each client. BOOTP enables 'diskless workstation' computers to obtain an IP address prior to loading any advanced operating system.

## CCD

---

Charge Coupled Device (CCD) is a hardware which enables the scan job. CCD Locking mechanism is also used to hold the CCD module to prevent any damage when you move the machine.

## Collation

---

Collation is a process of printing a multiple-copy job in sets. When collation is selected, the device prints an entire set before printing additional copies.

## Control Panel

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A control panel is a flat, typically vertical, area where control or monitoring instruments are displayed. They are typically found in front of the machine.

## Coverage

---

It is the printing term used for a toner usage measurement on printing. For example, 5% coverage means that an A4 sided paper has about 5% image or text on it. So, if the paper or original has complicated images or lots of text on it, the coverage will be higher and at the same time, a toner usage will be as much as the coverage.

## CSV

---

Comma Separated Values (CSV). A type of file format, CSV is used to exchange data between disparate applications. The file format, as it is used in Microsoft Excel, has become a de facto standard throughout the industry, even among non-Microsoft platforms.

## DADF

---

A Duplex Automatic Document Feeder (DADF) is a scanning unit that will automatically feed and turn over an original sheet of paper so that the machine can scan on both sides of the paper.

## Default

---

The value or setting that is in effect when taking a printer out of its box state, reset, or initialized.

## DHCP

---

A Dynamic Host Configuration Protocol (DHCP) is a client-server networking protocol. A DHCP server provides configuration parameters specific to the DHCP client host requesting, generally, information required by the client host to participate on an IP network. DHCP also provides a mechanism for allocation of IP addresses to client hosts.

## DIMM

---

Dual Inline Memory Module (DIMM), a small circuit board that holds memory. DIMM stores all the data within the machine like printing data, received fax data.

## DLNA

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The Digital Living Network Alliance (DLNA) is a standard that allows devices on a home network to share information with each other across the network.

## DNS

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The Domain Name Server (DNS) is a system that stores information associated with domain names in a distributed database on networks, such as the Internet.

## Dot Matrix Printer

---

A dot matrix printer refers to a type of computer printer with a print head that runs back and forth on the page and prints by impact, striking an ink-soaked cloth ribbon against the paper, much like a typewriter.

## DPI

---

Dots Per Inch (DPI) is a measurement of resolution that is used for scanning and printing. Generally, higher DPI results in a higher resolution, more visible detail in the image, and a larger file size.

## DRPD

---

Distinctive Ring Pattern Detection. Distinctive Ring is a telephone company service which enables a user to use a single telephone line to answer several different telephone numbers.

## Duplex

---

A mechanism that will automatically turn over a sheet of paper so that the machine can print (or scan) on both sides of the paper. A printer equipped with a Duplex Unit can print on both sides of paper during one print cycle.



## Duty Cycle

---

Duty cycle is the page quantity which does not affect printer performance for a month. Generally the printer has the lifespan limitation such as pages per year. The lifespan means the average capacity of print-outs, usually within the warranty period. For example, if the duty cycle is 48,000 pages per month assuming 20 working days, a printer limits 2,400 pages a day.

## ECM

---

Error Correction Mode (ECM) is an optional transmission mode built into Class 1 fax machines or fax modems. It automatically detects and corrects errors in the fax transmission process that are sometimes caused by telephone line noise.

## Emulation

---

Emulation is a technique of one machine obtaining the same results as another.

An emulator duplicates the functions of one system with a different system, so that the second system behaves like the first system. Emulation focuses on exact reproduction of external behavior, which is in contrast to simulation, which concerns an abstract model of the system being simulated, often considering its internal state.

## Ethernet

---

Ethernet is a frame-based computer networking technology for local area networks (LANs). It defines wiring and signaling for the physical layer, and frame formats and protocols for the media access control (MAC)/data link layer of the OSI model. Ethernet is mostly standardized as IEEE 802.3. It has become the most widespread LAN technology in use during the 1990s to the present.

## EtherTalk

---

A suite of protocols developed by Apple Computer for computer networking. It was included in the original Macintosh (1984) and is now deprecated by Apple in favor of TCP/IP networking.

## FDI

---

Foreign Device Interface (FDI) is a card installed inside the machine to allow a third party device such as a coin operated device or a card reader. Those devices allow the pay-for-print service on your machine.

## FTP

---

A File Transfer Protocol (FTP) is a commonly used protocol for exchanging files over any network that supports the TCP/IP protocol (such as the Internet or an intranet).

## Fuser Unit

---

The part of a laser printer that fuses the toner onto the print media. It consists of a heat roller and a pressure roller. After toner is transferred onto the paper, the fuser unit applies heat and pressure to ensure that the toner stays on the paper permanently, which is why paper is warm when it comes out of a laser printer.

## Gateway

---

A connection between computer networks, or between a computer network and a telephone line. It is very popular, as it is a computer or a network that allows access to another computer or network.

## Grayscale

---

A shades of gray that represent light and dark portions of an image when color images are converted to grayscale; colors are represented by various shades of gray.

## Halftone

---

An image type that simulates grayscale by varying the number of dots. Highly colored areas consist of a large number of dots, while lighter areas consist of a smaller number of dots.

## HDD

---

Hard Disk Drive (HDD), commonly referred to as a hard drive or hard disk, is a non-volatile storage device which stores digitally-encoded data on rapidly rotating platters with magnetic surfaces.

## IEEE

---

The Institute of Electrical and Electronics Engineers (IEEE) is an international non-profit, professional organization for the advancement of technology related to electricity.

## IEEE 1284

---

The 1284 parallel port standard was developed by the Institute of Electrical and Electronics Engineers (IEEE). The term "1284-B" refers to a specific connector type on the end of the parallel cable that attaches to the peripheral (for example, a printer).

## Intranet

---

A private network that uses Internet Protocols, network connectivity, and possibly the public telecommunication system to securely share part of an organization's information or operations with its employees. Sometimes the term refers only to the most visible service, the internal website.

## IP address

---

An Internet Protocol (IP) address is a unique number that devices use in order to identify and communicate with each other on a network utilizing the Internet Protocol standard.

## IPM

---

The Images Per Minute (IPM) is a way of measuring the speed of a printer. An IPM rate indicates the number of single-sided sheets a printer can complete within one minute.

## IPP

---

The Internet Printing Protocol (IPP) defines a standard protocol for printing as well as managing print jobs, media size, resolution, and so forth. IPP can be used locally or over the Internet to hundreds of printers, and also supports access control, authentication, and encryption, making it a much more capable and secure printing solution than older ones.

## IPX/SPX

---

IPX/SPX stands for Internet Packet Exchange/Sequenced Packet Exchange. It is a networking protocol used by the Novell NetWare operating systems. IPX and SPX both provide connection services similar to TCP/IP, with the IPX protocol having similarities to IP, and SPX having similarities to TCP. IPX/SPX was primarily designed for local area networks (LANs), and is a very efficient protocol for this purpose (typically its performance exceeds that of TCP/IP on a LAN).

## ISO

---

The International Organization for Standardization (ISO) is an international standard-setting body composed of representatives from national standards bodies. It produces world-wide industrial and commercial standards.

## ITU-T

---

The International Telecommunication Union is an international organization established to standardize and regulate international radio and telecommunications. Its main tasks include standardization, allocation of the radio spectrum, and organizing interconnection arrangements between different countries to allow international phone calls. A -T out of ITU-T indicates telecommunication.

## ITU-T No. 1 chart

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Standardized test chart published by ITU-T for document facsimile transmissions.

## JBIG

---

Joint Bi-level Image Experts Group (JBIG) is an image compression standard with no loss of accuracy or quality, which was designed for compression of binary images, particularly for faxes, but can also be used on other images.

## JPEG

---

Joint Photographic Experts Group (JPEG) is a most commonly used standard method of lossy compression for photographic images. It is the format used for storing and transmitting photographs on the World Wide Web.

## LDAP

---

The Lightweight Directory Access Protocol (LDAP) is a networking protocol for querying and modifying directory services running over TCP/IP.

## LED

---

A Light-Emitting Diode (LED) is a semiconductor device that indicates the status of a machine.

## MAC address

---

Media Access Control (MAC) address is a unique identifier associated with a network adapter. MAC address is a unique 48-bit identifier usually written as 12 hexadecimal characters grouped in pairs (e. g., 00-00-0c-34-11-4e). This address is usually hard-coded into a Network Interface Card (NIC) by its manufacturer, and used as an aid for routers trying to locate machines on large networks.

## MFP

---

Multi Function Peripheral (MFP) is an office machine that includes the following functionality in one physical body, so as to have a printer, a copier, a fax, a scanner and etc.

## MH

---

Modified Huffman (MH) is a compression method for decreasing the amount of data that needs to be transmitted between the fax machines to transfer the image recommended by ITU-T T.4. MH is a codebook-based run-length encoding scheme optimized to efficiently compress white space. As most faxes consist mostly of white space, this minimizes the transmission time of most faxes.

## MMR

---

Modified Modified READ (MMR) is a compression method recommended by ITU-T T.6.

## Modem

---

A device that modulates a carrier signal to encode digital information, and also demodulates such a carrier signal to decode transmitted information.

## MR

---

Modified Read (MR) is a compression method recommended by ITU-T T.4. MR encodes the first scanned line using MH. The next line is compared to the first, the differences determined, and then the differences are encoded and transmitted.

## NetWare

---

A network operating system developed by Novell, Inc. It initially used cooperative multitasking to run various services on a PC, and the network protocols were based on the archetypal Xerox XNS stack. Today NetWare supports TCP/IP as well as IPX/SPX.

## OPC

---

Organic Photo Conductor (OPC) is a mechanism that makes a virtual image for print using a laser beam emitted from a laser printer, and it is usually green or rust colored and has a cylinder shape.

An imaging unit containing a drum slowly wears the drum surface by its usage in the printer, and it should be replaced appropriately since it gets worn from contact with the cartridge development brush, cleaning mechanism, and paper.

## Originals

---

The first example of something, such as a document, photograph or text, etc, which is copied, reproduced or translated to produce others, but which is not itself copied or derived from something else.

## OSI

---

Open Systems Interconnection (OSI) is a model developed by the International Organization for Standardization (ISO) for communications. OSI offers a standard, modular approach to network design that divides the required set of complex functions into manageable, self-contained, functional layers. The layers are, from top to bottom, Application, Presentation, Session, Transport, Network, Data Link and Physical.

## PABX

---

A private automatic branch exchange (PABX) is an automatic telephone switching system within a private enterprise.

## PCL

---

Printer Command Language (PCL) is a Page Description Language (PDL) developed by HP as a printer protocol and has become an industry standard. Originally developed for early inkjet printers, PCL has been released in varying levels for thermal, dot matrix printer, and laser printers.

## PDF

---

Portable Document Format (PDF) is a proprietary file format developed by Adobe Systems for representing two dimensional documents in a device independent and resolution independent format.

## PostScript

---

PostScript (PS) is a page description language and programming language used primarily in the electronic and desktop publishing areas. - that is run in an interpreter to generate an image.

## Printer Driver

---

A program used to send commands and transfer data from the computer to the printer.

## Print Media

---

The media like paper, envelopes, labels, and transparencies which can be used in a printer, a scanner, a fax or, a copier.

## PPM

---

Pages Per Minute (PPM) is a method of measurement for determining how fast a printer works, meaning the number of pages a printer can produce in one minute.

## PRN file

---

An interface for a device driver, this allows software to interact with the device driver using standard input/output system calls, which simplifies many tasks.

## Protocol

---

A convention or standard that controls or enables the connection, communication, and data transfer between two computing endpoints.

## PS

---

See PostScript.

## PSTN

---

The Public-Switched Telephone Network (PSTN) is the network of the world's public circuit-switched telephone networks which, on industrial premises, is usually routed through the switchboard.

## RADIUS

---

Remote Authentication Dial In User Service (RADIUS) is a protocol for remote user authentication and accounting. RADIUS enables centralized management of authentication data such as usernames and passwords using an AAA (authentication, authorization, and accounting) concept to manage network access.

## Resolution

---

The sharpness of an image, measured in Dots Per Inch (DPI). The higher the dpi, the greater the resolution.

## SMB

---

Server Message Block (SMB) is a network protocol mainly applied to share files, printers, serial ports, and miscellaneous communications between nodes on a network. It also provides an authenticated Inter-process communication mechanism.

## SMTP

---

Simple Mail Transfer Protocol (SMTP) is the standard for e-mail transmissions across the Internet. SMTP is a relatively simple, text-based protocol, where one or more recipients of a message are specified, and then the message text is transferred. It is a client-server protocol, where the client transmits an email message to the server.

## SSID

---

Service Set Identifier (SSID) is a name of a wireless local area network (WLAN). All wireless devices in a WLAN use the same SSID in order to communicate with each other. The SSIDs are case-sensitive and have a maximum length of 32 characters.

## Subnet Mask

---

The subnet mask is used in conjunction with the network address to determine which part of the address is the network address and which part is the host address.

## TCP/IP

---

The Transmission Control Protocol (TCP) and the Internet Protocol (IP); the set of communications protocols that implement the protocol stack on which the Internet and most commercial networks run.

## TCR

---

Transmission Confirmation Report (TCR) provides details of each transmission such as job status, transmission result and number of pages sent. This report can be set to print after each job or only after failed transmissions.

## TIFF

---

Tagged Image File Format (TIFF) is a variable-resolution bitmapped image format. TIFF describes image data that typically come from scanners. TIFF images make use of tags, keywords defining the characteristics of the image that is included in the file. This flexible and platform-independent format can be used for pictures that have been made by various image processing applications.



## Toner Cartridge

---

A kind of bottle or container used in a machine like a printer which contains toner. Toner is a powder used in laser printers and photocopiers, which forms the text and images on the printed paper. Toner can be fused by a combination of heat/pressure from the fuser, causing it to bind to the fibers in the paper.

## TWAIN

---

An industry standard for scanners and software. By using a TWAIN-compliant scanner with a TWAIN-compliant program, a scan can be initiated from within the program. It is an image capture API for Microsoft Windows and Apple Macintosh operating systems.

## UNC Path

---

Uniform Naming Convention (UNC) is a standard way to access network shares in Window NT and other Microsoft products. The format of a UNC path is: \\<servername>\<sharename>\<Additional directory>

## URL

---

Uniform Resource Locator (URL) is the global address of documents and resources on the Internet. The first part of the address indicates what protocol to use, the second part specifies the IP address or the domain name where the resource is located.

## USB

---

Universal Serial Bus (USB) is a standard that was developed by the USB Implementers Forum, Inc., to connect computers and peripherals. Unlike the parallel port, USB is designed to concurrently connect a single computer USB port to multiple peripherals.

## Watermark

---

A watermark is a recognizable image or pattern in paper that appears lighter when viewed by transmitted light. Watermarks were first introduced in Bologna, Italy in 1282; they have been used by papermakers to identify their product, and also on postage stamps, currency, and other government documents to discourage counterfeiting.

## WEP

---

Wired Equivalent Privacy (WEP) is a security protocol specified in IEEE 802.11 to provide the same level of security as that of a wired LAN. WEP provides security by encrypting data over radio so that it is protected as it is transmitted from one end point to another.

## WIA

---

Windows Imaging Architecture (WIA) is an imaging architecture that is originally introduced in Windows Me and Windows XP. A scan can be initiated from within these operating systems by using a WIA-compliant scanner.

## WPA

---

Wi-Fi Protected Access (WPA) is a class of systems to secure wireless (Wi-Fi) computer networks, which was created to improve upon the security features of WEP.

## WPA-PSK

---

WPA-PSK (WPA Pre-Shared Key) is special mode of WPA for small business or home users. A shared key, or password, is configured in the wireless access point (WAP) and any wireless laptop or desktop devices. WPA-PSK generates a unique key for each session between a wireless client and the associated WAP for more advanced security.

## WPS

---

The Wi-Fi Protected Setup (WPS) is a standard for establishing a wireless home network. If your wireless access point supports WPS, you can configure the wireless network connection easily without a computer.

## XPS

---

XML Paper Specification (XPS) is a specification for a Page Description Language (PDL) and a new document format, which has benefits for portable document and electronic document, developed by Microsoft. It is an XML-based specification, based on a new print path and a vector-based device-independent document format.

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